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PROCEEDINGS
OF THE
CONNECTICUT MEDICAL SOCIETY,
1903.

ONE HUNDRED AND ELEVENTH
ANNUAL CONVENTION,
HELD AT
HARTFORD, MAY 27TH AND 28TH.

PUBLISHED BY THE SOCIETY.

GOULD A. SHELTON, M.D.,
SAMUEL B. ST. JOHN, M.D.,
N. E. WORDIN, M.D.,
Publication Committee.

1903.

The Connecticut Medical Society does not hold itself responsible for the opinions contained in any article, unless such opinions are endorsed by special vote.

All communications intended for the Connecticut Medical Society must be addressed to N. E. Wordin, M.D., Bridgeport, Conn.

The next Annual Meeting of the Connecticut Medical Society will be held in New Haven, May 25th and 26th, 1904.

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OFFICERS OF THE SOCIETY.

1903—1904.

PRESIDENT.

SAMUEL B. ST. JOHN, Hartford.

VICE-PRESIDENT.

WILLIAM H. CARMALT, New Haven.

VICE-PRESIDENTS, ex-officio.

HOWARD O. ALLEN,
JOSEPH H. TOWNSEND,
FREDERICK H. DART,
WILLIAM B. COGSWELL,
HENRY R. LOWE,
JEROME S. BISSELL,
CHARLES H. HUBBARD,
EDWIN T. DAVIS.

TREASURER.

W. W. KNIGHT.

SECRETARY.

N. E. WORDIN.

ASSISTANT SECRETARY.

H. S. MILES.

COMMITTEE ON MATTERS OF PROFESSIONAL INTEREST IN THE STATE.

C. J. FOOTE, F. A. MORRELL, L. B. ALMY.

STANDING COMMITTEES.

Committee to Nominate Physicians to the Retreat for the Insane.

J. M. KENISTON, H. L. HAMMOND, A. R.
DEFENDORF, RIENZI ROBINSON,
E. P. SWASEY.

Committee on Legislation.

L. S. PADDOCK, E. F. PARSONS, N. E. WORDIN,
E. J. McKNIGHT, Hartford County.
C. S. RODMAN, New Haven County.
F. A. BRAMAN, New London County.
J. W. WRIGHT, Fairfield County.
J. B. KENT, Windham County.
R. S. GOODWIN, Litchfield County.
F. K. HALLOCK, Middlesex County.
C. B. NEWTON, Tolland County.

Committee on Medical Examination.

CHARLES A. TUTTLE,
HORACE S. FULLER,
SAMUEL M. GARLICK,
J. FRANCIS CALEF,
WALTER L. BARBER.

On Honorary Members and Degrees.

C. A. LINDSLEY, E. H. WELCH, H. S. FULLER.

Committee on Publication.

GOULD A. SHELTON,
S. B. ST. JOHN,
N. E. WORDIN.

Committee on Arrangements.

S. P. GILBERT, R. S. GOODWIN, JR., F. N. SPERRY.

PROCEEDINGS
OF THE
CONNECTICUT MEDICAL SOCIETY,
ONE HUNDRED AND ELEVENTH ANNUAL MEETING.

The President and Fellows of the Connecticut Medical Society met in the Hunt Memorial Building, Hartford, Wednesday afternoon, May twenty-seventh, 1903, and were promptly called to order at two o'clock by the President. The Committee on Credentials reported, the Secretary calling the roll with the following result:

FELLOWS, *ex-officio*.

President.

GOULD A. SHELTON,

Vice President.

SAMUEL B. ST. JOHN,

Presidents of County Associations.

HOWARD O. ALLEN,

*HENRY R. ROWE,

JOSEPH H. TOWNSEND,

JEROME S. BISSELL,

FREDERICK H. DART,

*CHARLES H. HUBBARD,

*WILLIAM B. COGSWELL,

*EDWIN T. DAVIS.

Secretary.

N. E. WORDIN.

Assistant Secretary.

J. H. TOWNSEND.

Treasurer.

W. W. KNIGHT.

Committee on Matters of Professional Interest in the State.

E. K. ROOT,

*P. W. STREET,

F. K. HALLOCK.

FELLOWS ELECTED BY COUNTIES:

Hartford County.

Arthur J. Wolff,	*Thomas D. Crothers,
*George C. Bailey,	Oliver C. Smith,
	*Thomas S. O'Connell.

New Haven County.

Arthur N. Alling,	John H. Hayes,
Edward C. Beach,	Frederick H. Sperry,
	Louis M. Gompertz.

New London County.

Charles E. Brayton,	*W. S. C. Perkins,
*Frank W. Hewes,	*Patrick Cassidy,
	*Morton E. Fox.

Fairfield County.

D. C. Brown,	Charles C. Godfrey,
James D. Gold,	William H. Donaldson,
	†Frank L. Smith.

Windham County.

Henry L. Hammond,	Frederick Rogers,
T. Morton Hills,	Frederick A. Morrell,
	‡Amos Avery.

Litchfield County.

Edward H. Welch,	Elias Pratt,
§Alfred E. Cobb,	John W. Johnson,
	Irving L. Hamant.

Middlesex County.

Frank K. Hallock,	M. W. Plumstead,
Miner C. Hazen,	John H. Grammiss,
	James M. Keniston.

Tolland County.

Ernest O. Winship,	Frederick Gilnack,
	†Eli P. Flint

*Absent. †Alternate for John C. Lynch. ‡Alternate for Frank H. Coops. §Alternate for James B. Shannon. §Alternate for Noah H. Wadhams. †Alternate for Charles H. Carlin. ‡Alternate for Frank E. Potter. †Alternate for Alonzo L. Hurd

The record showed an unusually large attendance, some of the Counties having a full delegation. The President then read his

ADDRESS TO THE FELLOWS.

FELLOWS OF THE CONNECTICUT MEDICAL SOCIETY.

Gentlemen :—

The honor of presiding over the deliberations of the Fellows of the Connecticut Medical Society, is one most keenly appreciated, and for this, the highest honor within the gift of the members of our Society, I desire to present my most grateful thanks.

It is a matter of no little interest, to each one of us, to assemble at this annual meeting, and discuss the live questions of the hour, that during the past year have rolled themselves into the work of this convention.

The restless activity of the earnest workers in our profession, is continually bringing to us valuable subjects for consideration, and the conditions to be met in governmental changes, both national and state-wise, require adjustment in a manner that must call from us our best judgment and painstaking care.

The necessities of our Society are commensurate with its growth, and the upward progress it steadily makes must be jealously watched and as jealously maintained.

You will have among your duties at this session, one of greatest importance to the life and conduct of our old time and honored organization. To prune away the useless and worn-out branches of our vine, and replace them by advanced and improved cultures, in harmony with the life of to-day, calls from you your highest and most energetic efforts. Let us enter upon them with an earnestness, born of loyalty to our profession, and of Supreme hope for the lasting good of our Society.

You have before you to-day as an inherited gift of

1902, the Report of the Committee to revise the by-laws of this society. It has been before you through your county clerks a sufficient length of time, for you to be familiar with its provisions. In it are important changes to be made in our by-laws, that will affect its old time life. This report you now have for your wise and judicious disposition.

Many of the proposed amendments are necessary for the improved work of the present day, which as you see, will carry with them their own conviction, and will probably require but little time to be incorporated into the general structure of our constitutional guide.

No part of the proposed amendments will affect the old-time tenor of its way, more than that of the representation in the House of Fellows. It will be no easy task to satisfy all parts of our state in any representative plan, but that which in the greatest equity, can bring the desired benefit, should be the one for your thoughtful consideration.

The committee appointed for that purpose has evidently made a careful study of the question, in all its bearings upon the several interests in the state, and have presented their majority and minority reports.

Should you think it wise to make any change in the representation of Fellows, that plan of one Fellow to every twenty members would seem as just as any, and give to the House of Fellows its usual working number.

Great and laudable efforts have been made in the past few years, to gather into the national organization an increased membership from the several state associations. It is a matter of pride to know that Connecticut has so large a number of her members enrolled within the American Medical Association. It is to be hoped that many others will see the benefit of seeking membership in the national association.

There is a pressing need, also, of strengthening our own society in bringing within its folds every eligible

physician within our commonwealth. Would it not be well for our country clerks to enter upon this missionary work and influence a more complete membership in the several societies. The interesting report of our Secretary gives us an increase of sixteen members. This is healthful, it is true, yet there are many more that should be enrolled with us.

The report of the Committee on revision of by-laws suggests an added section, by placing upon every new member an initiation fee of five dollars. This, with an annual fee of three dollars, presents an eight dollar invitation, conditional upon his proposed entrance.

It is needful to bring into our Society the young and able members of our profession, in training, if you please, for the earnest duties of society membership. Will not this initiation fee work a hardship upon some of the younger members of the profession, and deter them from entering into state membership?

On consideration of this question, I can but recommend an unfavorable action upon this proposed amendment. Let the door of entrance to the Connecticut Medical Society be as wide open, and as inviting in the future as it has been in the past.

That the state Society, and the county Society have such nearness of touch, as to seem a harmonious whole, must be the earnest desire of every member. Such is the case in theory, it is true, yet in its practical application it would seem to fall short of its purpose.

The President and Secretary rarely have any notice of the several county meetings. It would seem needful that the state secretary should know, as also the county clerk, the date of the meetings, in order that the delegates to the several county societies may be in attendance upon the meeting to which he or she bears credentials.

The president has a duty largely perfunctory. He presides at the meetings, delivers his addresses, and

hands over to his successor the honor and emoluments (?) of his office, which he has so faithfully held in his keeping. Could he not add another duty, that of an official visitation upon each county society at their semi-annual or annual meetings? Would it not stimulate a reciprocal interest in the work of our state and county societies, and bring about an interchange of interests of a nature helpful to both?

In the early part of the year now closing, the Secretary of "The American Congress on Tuberculosis" communicated his desire that Connecticut should send a goodly number of delegates to the World's Congress on Tuberculosis, to be held in Washington in 1905. Following the custom of other administrations, and without constitutional authority, with the assistance of the secretary, the following delegates have been appointed, who will in due time receive their proper credentials

Doctors S. D. Gilbert, Charles A. Tuttle, William C. Welch, Henry L. Swain, Walter R. Steiner, Arthur J. Wolff, C. H. Bill, William S. Randall, M. V. B. Dunham, Watson E. Rice, C. O. Belden, Edward H. Welch, John H. Granniss, J. Francis Calef, T. Morton Hills, Edwin B. Lyon, Charles H. Hubbard, Lewis Barnes, Gustavus Eliot, F. E. Castle, R. B. Goodyear, James E. Stetson, Joseph E. Root, Edward G. Fox, David Crary, Jay S. Stone, S. M. Garlick, N. E. Wordin, Jean Dumortier, G. B. Cowell, George F. Lewis, Elias Pratt, Jerome S. Bissell, Louis E. Cooper, F. N. Loomis.

Through repeated efforts on the part of the American Medical Association, to obtain a National Incorporation, in order that the work of the Association would be legalized in whatever state it held its meetings, a Special Committee was appointed by the House of Delegates at New Orleans, to attend to this matter at the coming session of Congress. Among the several correspondents in our state, the letter of Dr. O. T. Osborne would seem to echo the sentiment of Connecticut on this subject, in

a most positive way. In this with special emphasis, from a legal standpoint, was added an opinion from an eminent authority in law, that such an enactment would be both just and constitutional. It has been suggested by the President of the New York State Medical Association and others, that some resolution favoring this incorporation be passed by our society at this meeting. It would seem wise, I think, to place ourselves upon record, by some resolution agreeable to this matter of national interest.

The standard of medical education, which the Association of Medical Colleges so wisely set at New Orleans at the meeting of the American Medical Association, must meet, I think, with the hearty endorsement of the profession at large. Surely the four years' course of high school work, should be considered the minimum requirement for entrance to the study of medicine, and the examinations for admission, to be made by other colleges than the one which the candidate proposes to enter, is equally wise and reasonable.

It is to be hoped that the last report of the Committee on Honorary Members, which recommended the name of Dr. Reynold Webb Wilcox, will be accepted, and that this distinguished son of Connecticut, now of the Empire State, will be made an honorary member of our Society. He has, by his devotion to, and work for the profession, well earned the eminent position he has attained, and I believe he will greatly honor us by his membership in our state organization.

The revised code of medical ethics, which for years has been knocking at the door of the American Medical Association, has at New Orleans been invited to enter. The softening influence of the southern springtime gave it a royal welcome, and in its new name, and under the guidance of the Golden Rule, it gladly takes up its duty, along the broad lines of charity, benevolence, and manly conduct. It differs, perhaps, but a little from that of

our own Connecticut code. Its liberality in professional conference may be greater, yet its generous mid-way courtesy brings it to a higher plane of manly honor, and closes forever, we trust, this disturbing question. Would it not be well for us to enter upon its adoption, and by our hearty acquiescence bring ourselves into a close touch with the generous impulses of our maternal association.

To omit the mention of the most excellent work of your Legislative Committee, would be an unpardonable unkindness.

While the work done in the passage of desirable bills, is deserving of our highest praise, its most effective and commendable efforts were those along the lines of negative legislation. To render futile the deep-laid schemes of the anti-vaccinationist, calls from the public health of our state, a well deserved acknowledgment of valuable service rendered by this committee, which Connecticut cannot well afford to ignore. These bills were most adroitly presented, stubbornly defended, as ably opposed, and gloriously defeated.

All credit is due your Committee for its efficient work, whose interesting report in detail you will be pleased to receive. Since efficiency is the natural birth of experience, it would seem an act of wisdom for your honorable body to continue its nurturing care of this committee plant through a prompt renomination.

The enactment of an amendment to the Medical Practice Act, known as the Reciprocity Amendment, completes in a more perfect way, our official guide to medical practice in Connecticut. For several years, a growing necessity for reciprocal relations with adjoining states whose standard of examinations equaled our own, has been felt. This amendment brings the relief desired, and the medical men from adjoining states holding certificates, may now register within the boundaries of

our commonwealth, and thus enter into its full privileges.

It is with pardonable pride, that we refer to the excellent work that has been done by the Tuberculosis Annex of the Hartford Hospital. It seems to have passed beyond the period of experiment, and entered upon its genuine and earnest work. To welcome an institution within the means of the masses, is a privilege greatly to be enjoyed. Along with the contagiousness of tuberculosis, must be associated the commendable contagiousness of institutions for humanitarian work. New Haven County, in full appreciation of its needful desires, has located on a commanding site in the center of the county, her own sanitarium for tuberculosis. In connection with this site, it is pleasing to say, that through the generous liberality of Dr. Gaylord of Branford, the projectors of this enterprise were able to secure his valuable farm of two hundred and fifty acres for this purpose, which rightly will bear the name, "Gaylord Farm." Its plans are being developed, and every reasonable method of treatment which advanced science can suggest will be called into requisition. We can but wish this noble work an abundant success. Can we not hope that other counties in our state, will soon enter upon this great work of providing for this needful class of patients.

From the United States Census Bureau has come an appeal for accurate and uniform certificates of causes of deaths, in harmony with that of the International Classification. While a careful study of the classification of causes of death is of greatest value in national reports of mortality statistics, we only have to say that our state Board of Health has for many years required most accurate and carefully filled statistics, and that, too, along the line of International Classification. Uniformity in reporting causes of death will alone secure those statistics, which are valuable, and which can be obtain-

ed in no other way, than through this International Classification.

Permit me in conclusion, gentlemen, to say that the Great Reaper has treated us most kindly in His work of "gathering in His sheaves." Only five of our professional associates have been called from our ranks by the Great Statistician of all. We have only to mention Drs. Bunce, Griswold, Tuttle, Chapman and Newton, whose days of self-sacrificing labor have ended, to learn that their earnest work for humanity's good, must now be taken up by others.

May it be as well and conscientiously done. The half century work of Drs. Bunce and Griswold has left its beneficent impress. Dr. Tuttle, who labored nearly as long, was in the midst of his best work, when as President of the New Haven County society, and Vice-President Ex-officio of the state society, he laid aside his life's duty, most loyally discharged. Dr. Chapman for many years has been faithful to his trust, and a life of well-earned reward been passed to his credit, while the enthusiastic and earnest beginning of Dr. Newton's promising future, brings to us that which would seem to be a noble life unfinished. They who intimately know these lives will write of their true worth on the historical pages of our memorial record.

I now declare the one hundred and eleventh annual meeting of the President and Fellows of the Connecticut Medical Society, open for the transaction of such business as may be presented for your consideration.

This was referred to the Committee appointed for that purpose.

The Regular Committees were then announced.

On Credentials.

N. E. Wordin,

T. S. O'Connell.

On Unfinished Business.

J. S. Bissell,

T. D. Crothers,

J. M. Keniston,

J. H. Townsend,

W. H. Donaldson.

On County Resolves.

Elias Pratt,

C. C. Godfrey,

E. C. Beach.

To Nominate Essayists on the Progress of Medicine and Surgery.

H. O. Allen,

P. Cassidy,

J. F. Hayes.

Auditing.

J. H. Granniss,

Henry C. Lowe.

Reception of Delegates and Guests.

Oliver C. Smith,

E. K. Root,

G. C. Bailey.

In the absence of Doctor Cassidy on the Committee to Nominate Essayists on the Progress of Medicine and Surgery, the President appointed Dr. J. D. Gold; as auditing committee, Doctors Plumstead and Flint, and Doctors Hazen and Godfrey to consider the Recommendations in the President's address, instead of Doctors Hubbard and Cogswell, who were not present.

The report of the Committee on Unfinished Business was the first called for and they reported :

THE COMMITTEE ON UNFINISHED BUSINESS

Have to report, that the majority of the Committee to revise the by-laws, required this committee to have our revisions and suggestions drawn up and printed one month prior to this meeting. As this committee did not receive this appointment until about two weeks ago it has given us insufficient time to act and carry out the necessary requirements. Therefore we recommend that a matter of such importance as the revision of our by-laws,

be referred to a special committee appointed by the President at this meeting, said committee to consist of the President and Secretary of the State Society, together with one member from each county, making the entire committee ten in number.

We further recommend that this committee be required to have their report completed and printed in sufficient time for the county societies to act upon them at their fall meeting prior to our next regular annual meeting, which will allow ample time for the society's action before the next meeting of the legislature.

The report was accepted.

Dr. Donaldson said as a member of the Committee, that the Committee was in favor of adopting the Constitution and By-Laws of the American Medical Association, but it would require so much revising as to make the work of a special committee necessary. This Committee has taken up the report of last year, and looked it over. Another committee should fully consider it and make out a report in time for the County Meetings where it should be fully discussed. Nothing can be fully and finally done about it before the meeting of the next Legislature.

Dr. Lindsley heartily approved of this suggestion, a matter of so much importance should be considered from every point of view.

Dr. Segur appreciates fully the position of the Committee. They have not had sufficient time. So far as the adoption of the Constitution and By-Laws of the American Medical Association is concerned, it would require but little modification of the charter. We could adopt the recommendations of the National Association with only slight alteration. It is greatly to our honor and credit to know that the Constitution and By-Laws of the American Medical Association is modeled after ours. It had a larger influence than that of any other Society.

They might be acted upon at the present time. Some of the points suggested by the Committee of last year might be arranged now—for instance, the provision for the removal of members from one County to another. There is not now any such arrangement covered by our By-Laws.

Changing the Committee on Matters of Professional Interest in the State and others is simply a matter of patching up the old Constitution.

The plan proposed for the annual dinner might be adopted at this time.

Dr. G. Eliot: These matters of revising the By-Laws have been standing before the Committee a year. It would be wise to act upon some of them to-day. I move to lay the report of this Committee on the table. The motion was lost.

Dr. Donaldson: The Committee has had but a short time to consider the report together. We considered Dr. Segur's report and it seemed to be a little mixed. It commences by suggesting that we adopt the model Constitution and then goes on to suggest the amending of our own. The subject is an old one. We couldn't act on it well to-day. If we are to adopt the model Constitution, why patch up our old one? Let us leave it alone until it has been well considered in committee. Ours has answered us very well for a hundred and eleven years. A full committee will give it mature deliberation, the County Associations will consider it at their meetings and at the next annual meeting it will again be brought up for full and final consideration.

The report of the Committee was accepted.

The report of the Treasurer was presented

TREASURER'S REPORT.

To the President and Fellows of the Connecticut Medical Society :

As Treasurer I would present the following report of the finances of the Society for the year ended May 26, 1903

RECEIPTS.

Cash received from taxes collected by the County Clerks:

Hartford County,	\$379 34
New Haven County,	373 05
Fairfield County,	228 82
New London, County,	122 85
Middlesex County,	102 40
Windham County,	67 50
Litchfield County,	135 62
Tolland County,	21 00

Total receipts from taxes,	\$1,430 58
Balance from old account,	6 90

Total,	\$1,437 48
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EXPENSES.

Proceedings; printing, binding, distributing, etc.,	\$857 99
Postage,	12 00
Printing, stationery, etc.,	6 12
Expenses, Committee on Matters of Professional Interest,	43 18
Expenses, Committee on National Legislation,	20 00
Salary of Secretary,	150 00
Salary of Treasurer,	25 00
Expenses of Secretary,	12 25

Total expenses,	\$1,126 54
Balance to new account,	310 94

Total,	\$1,437 48
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ARREARS IN TAXES OF 1902.

Hartford County,	\$ 69 00
New Haven County,.....	225 00
Fairfield County,	192 00
Litchfield County,	24 00
New London County,	36 00
Middlesex County,	Nothing
Windham County,	27 00
Tollaud County,	Nothing
<hr/>	
Total amount in arrears,	\$573 00

The expenses of the Society have been \$18.00 less than last year on this account but there are outstanding bills, corresponding to those paid in the preceding year's account, which would make the expenses somewhat in excess of last year.

The income has increased \$262.00 due to an increase in the tax of seventy-five cents per member. This income would have been much more augmented but the County Clerks seem to have met more than the usual obstacles in the collection of the tax, which resulted in an unusual amount of taxes in arrears, \$573.00.

The Society has now \$310.00 in its treasury. This is better than a deficit but this sum when reduced by the payment of outstanding bills will be smaller than the balance we should have for the prompt payment of bills. The Treasurer would recommend economy and a tax of \$2.75 per member, payable June 1, 1903.

Respectfully presented,

W. W. KNIGHT,

Treasurer.

To the President and Fellows of the Connecticut Medical Society :

We the Auditing Committee of the Connecticut Medical Society, have examined the accounts of same and found them correct.

M. W. BUMPSTEAD,
FREDERICK ROGERS,

Hartford, Conn., May 27, 1903.

Some discussion arose regarding the tax.

Dr. Hazen thought it should be as small as possible, and moved that it be two dollars and a half.

Dr. St. John: The Treasurer has figured out the matter and knows how much will be necessary. We will be short and will need a subscription to make up the deficiency.

Dr. Hazen: There are things more important than a deficit.

Dr. Townsend said that the sentiment in his County was to keep the tax as low as possible, that no one shall be kept out of the Society.

Dr. Hills was in favor of making it \$2.75. Cutting the tax of the Connecticut Medical Society twenty-five cents from the recommendation of the Treasurer was small.

Dr. Lindsley: No one would hesitate to pay the amount. He doubts if we would get any more money at \$2.75 than we would at \$3.00. A Society as honorable and respectable as this ought to pay three dollars. The motion to make the tax two dollars and a half was lost.

At this moment the Nominating Committee entered the room and asked for instructions regarding their duties—whether they should nominate a Secretary.

Dr. Eliot: If the note appended to Chapter III, Section 9 has the force of a By-Law there is no need of nominating a Secretary.

Dr. Brown: The note has appealed to us. The Secretary is to hold his office for four years. Having held it

now for four years it seemed advisable to nominate, but we are at a loss how to construe the By-Laws.

It was moved and carried that the Nominating Committee be instructed to bring in nomination for Secretary.

Dr. Donaldson moved to amend that the Committee bring in a nomination of Secretary for four years. Passed.

Dr. Osborne made a motion that the Fellows employ a stenographer. The money will be spent better than it is now. We can do away with the Committee on matters of Professional Interest in the State. The motion passed.

Dr. Mailhouse tendered his report on National Legislation of the American Medical Association.

To the President and Fellows of the Connecticut Medical Society :

Your representative on the Committee on National Legislation of the American Medical Association begs leave to report that the Auxiliary Committee was not called together during the past year. However, the Standing Committee succeeded in stopping the course of an Anti-vivisection bill which had been introduced into the U. S. Senate and which was all the work coming to the Committee.

Respectfully submitted,

MAX MAILHOUSE,,

Delegate for Connecticut.

IN BEHALF OF THE COMMITTEE ON MEMORIAL TO DR. TODD,
DR. RUSSELL REPORTED.

The committee appointed at the last meeting of the Connecticut Medical society, to petition the General Assembly of the state for some memorial of the late Dr. Eli Todd, would respectfully report, that representatives of this society appeared before the committee on appropriations and made a full representation of the case.

They had been much assisted by Mr. Arthur L. Shipman, who drew up the petition.

We regret to state that the Committee made an unfavorable report upon our petition, and this report was accepted by both houses.

This is the second time our petition has been refused, and it does not seem advisable to present it in this quarter any further. If we had failed in any manner or matter, we might think otherwise, but we are not conscious of having omitted any thing which was right or proper, and are no less conscious of the justice of our claim.

All of which is respectfully submitted,

GURDON W. RUSSELL,
Chairman.

Hartford, May 27, 1903.

He supplemented his report with remarks regretting the inability of the Committee to secure the object desired.

No reasons were given, he said, for the rejection of the petition. Perhaps there was no money in the Treasury. Another reason has been suggested that it would be setting a precedent. Other bodies would be wishing for the honor. In presenting the matter we did not hesitate to say that Dr. Todd was the author of more humane treatment for the insane than there had been anywhere in Connecticut or in the Union. That was honor enough for a tablet in a niche or for a statue on the grounds. It was plausible not to grant the request and the Committee were unanimous in their report. We were no less conscious of the right of our claim. The report was accepted.

The Committee on County Resolves recommends that the resolutions reported by the Counties be endorsed. These were to exempt from further taxation Dr. N. Nickerson of Meriden, to accept the resignation of Dr. Caro-

line R. Conkey of Waterbury, and to drop from membership for non-payment of dues, Doctors R. G. Levery and G. Stanley Heft of Bridgeport. Inquiry was made concerning these names and a motion was made that those suspended for non-payment of dues be laid on the table.

Dr. Osborne: Why go back on the action of the County? A member replied that they had had experience in their County and had got into trouble.

Dr. Donaldson explained: The two members from Fairfield County were men who had never paid a dollar's tax although they had been dunned repeatedly. They never had paid anything. We thought that they would finally pay up, but they didn't. We are behind in our dues to the State Society and are trying to keep the men on. There is no necessity of deferring the matter.

Dr. Pratt: By the By-Laws it becomes the duty of the County to expel its own delinquent members and to report the action to the meeting of the Fellows. We approve the action of Fairfield County. There is no need to lay the matter on the table. The report was accepted.

THE COMMITTEE TO NOMINATE ESSAYISTS ON THE PROGRESS OF MEDICINE AND SURGERY NAMED.

Reports on the Progress of Medicine, S. M. Garlick, P. H. Harriman; on the Progress of Surgery, T. H. Russell. The report was accepted.

THE NOMINATING COMMITTEE.

announced that they were ready to report and the Secretary read the names which they presented.

President.

S. B. St. John.

Vice President.

W. H. Carmalt.

Treasurer.

W. W. Knight.

Secretary.

G. C. Segur.

Assistant Secretary.

J. H. Townsend.

Committee on Matters of Professional Interest in the State.

C. J. Foote,

F. A. Morrell,

L. B. Almy.

Committee to Nominate Physician to the Retreat for the Insane.

J. M. Keniston,

H. L. Hammond.

Committee on Honorary Members and Degrees.

E. H. Welch,

H. S. Fuller.

Committee of Arrangements and Anniversary Chairman

S. D. Gilbert,

R. S. Goodwin, Jr.,

F. N. Sperry.

Committee on Medical Examinations.

C. A. Tuttle.

Dissertator.

Rienzi Robinson.

Alternate Dissertator.

Charles Bartlett.

Member of House of Delegates, American Medical Association.

L. D. Bulkley.

Delegates to Maine Medical Association.

Rienzi Robinson,

H. W. Ring.

Delegates to the New Hampshire Medical Society.

A. J. Campbell,

S. B. Overlock.

Delegates to the Vermont State Medical Society.

H. G. Anderson,

H. G. Howe.

Delegates to the Massachusetts Medical Society.

C. J. Fox,

C. C. Godfrey.

Delegates to the Rhode Island Medical Society.

M. W. Plumstead,

W. K. Tingley.

Delegates to the Medical Society of New Jersey,

H. L. Hammond,

A. J. Wolff.

Delegates to the New York State Medical Association.

F. E. Potter,

G. Eliot.

R. W. Kimball,

F. A. Morrell.

The report was accepted and a motion passed that we proceed to the election of officers. Objection was made to the Secretary casting one ballot for the candidates and the Secretary was directed to cast one ballot for Dr. St. John for president. This was done and he was declared elected. The Secretary was directed to cast one ballot for Dr. W. H. Carmalt for vice president and he was similarly declared elected. In the same manner Dr. Knight was elected treasurer.

Dr. Donaldson then moved to substitute the name of Dr. Wordin for that of Dr. Segur in the report. This called forth considerable discussion until a motion was made that the society proceed to ballot, which was amended that the members vote as the Secretary calls the roll. This was done, Doctors Tuttle and Godfrey having been appointed as tellers, the Assistant Secretary calling the roll. The result of the ballot was: Total vote 39, necessary to choice 20, Dr. Segur 13, Dr. Wordin 25. Dr. Wordin was declared to be elected Secretary.

Dr. Miles was nominated for Assistant Secretary and the Secretary cast one ballot for him, thereby electing him. The Committee on Matters of Professional Interest in the State was similarly elected when on motion the Secretary cast his ballot for the remainder of the ticket.

The Auditing Committee reported that they had examined the accounts of the Treasurer and found them correct and the Report of the Treasurer was accepted. The Standing Committees had now been reached in order. Dr. Defendorf from the Committee to nominate

Physicians to the Retreat for the Insane reported that nothing had been done.

Dr. McKnight made the Report of the Committee on Legislation.

REPORT OF CHAIRMAN OF COMMITTEE ON LEGISLATION.

Thirteen bills have been introduced into the present session of the General Assembly of interest to physicians or affecting the public health, a list of which is appended hereto.

Two of these refer to the establishment by the State Board of Health of a bacteriological laboratory. The Committee on Public Health and Safety, to whom they were referred, found that arrangements could be made to have the work done by laboratories already established with less expense to the state, but such arrangement was not satisfactory to the promoters of the bills and both have been rejected.

Two bills were aimed at the establishing of a state hospital for the insane, in addition to the one now located at Middletown, one of them calling for an institution under homeopathic control, to be located in or near the town of Norwich, the other in Fairfield County. A substitute bill is now before the Committee on Appropriations for the establishment of a state hospital for the insane at Norwich; but the matter of control, as regards the different schools of medicine, has been eliminated.

Senate bill No. 71, providing for amending the Medical Practice Act so that treatment of cancer should be exempted from the provisions of the statute, was introduced entirely in the interest of one man, who has a large following in the eastern part of the state. This bill was reported upon adversely by the Committee on Public Health and Safety and rejected by both branches.

The same course was followed with Senate bill No. 106, which provided for equal privileges to all reputable registered physicians in every hospital receiving state aid.

The bill which was perhaps of greatest interest to this society was House bill No. 123, which provides that

Any one of the examining committees appointed under the provisions of section 4716 may accept the license of any state board of medical examiners of any state in the United States or in the district of Columbia in lieu of said examination, provided the applicant shall present such license to the examining committee before whom he appears, together with satisfactory evidence that such license has been issued after a state examination of as high a grade and of the same kind as that required by said examining committee, that he is a resident of this state or that he intends in good faith to permanently reside herein, that he has been in actual practice for a period of at least six months in the year immediately preceding the date of his application, and that he is of good moral character and professional standing; and upon the payment to said committee of the sum of fifteen dollars he may receive a certificate of the approval of such license by said examining committee.

Section 2 of this bill simply corrects an error made by the Committee which made the last revision of the General Statutes. The writer believes that he is expressing the opinion of all those who are interested in the passage of this bill when he states that it is not intended to be applied promiscuously to recent graduates, but gives the opportunity for an examining board, at its pleasure, to license a deserving physician who has been engaged in active practice for some years and in whose case it would be a great hardship to be obliged to pass a new and rigid examination. It has also been the prevailing opinion that it should only be applied to those cases where the former examination was passed in a state which is willing to adopt reciprocal relations with this state.

Six bills were introduced in relation to vaccination. One, at the suggestion of the attorney for the State Board of Health, making it obligatory instead of optional

upon school visitors, town school committees, or boards of education to require children to be vaccinated before attending school. The others aimed at a change or repeal of existing laws so as to make them inoperative. An adverse report was made by the committee, the question coming up in the House, on a motion to accept the report of the committee and reject the bills. This was lost by a vote of 99 to 109 and a motion to recommit was carried. The Senate voted to accept the report of the committee and reject the bills and they went back to the House on disagreeing action. The House then voted to adhere to its former action and called for a committee of conference, to which the Senate agreed. The committee of conference were unable to agree and, both branches adhering to their former action, nothing further could be done. The laws in relation to vaccination therefore remain unchanged.

Your Chairman can not close this report without expressing his deep gratitude to the House Chairman of the Committee on Public Health and Safety, a member of this society, to whose efforts our successes have been largely due.

E. J. McKNIGHT,

Chairman Committee on Legislation.

Hartford, Conn., May 27th, 1903.

LIST OF BILLS INTRODUCED INTO THE GENERAL ASSEMBLY
OF THE STATE OF CONNECTICUT, JANUARY SESSION,
1903, OF INTEREST TO PHYSICIANS AND
AFFECTING THE PUBLIC HEALTH.

Senate Bill No. 37. By Senator Woodruff of the Eighth District, entitled "An Act concerning a Laboratory of Hygiene," providing for the establishment by the State Board of Health of a chemical and bacteriological laboratory for the examination of cases of disease, of water supplies, and sewage, and substances suspected to be causes of disease, and for chemical or pathological investigation for use in criminal prosecutions.

To the Committee on Public Health and Safety.

House Bill No. 116. By Mr. La Belle of Killingly, entitled "An Act concerning Bacteriological Laboratory," providing that the State Board of Health shall establish and maintain a bacteriological laboratory where physicians may have bacteriological specimens tested, analyzed and reported at a minimum expense.

To the Committee on Public Health and Safety.

House Bill No. 161. By Mr. Lake of Hartford (by request), entitled "An Act establishing a State Homeopathic Hospital for the Insane," providing for the establishment by the State of such a hospital in or near the town of Norwich.

To the Committee on Humane Institutions.

House Petition No. 127. Petition of Curtis H. Bill and others for the location of a hospital for the insane in Fairfield County.

To the Committee on Humane Institutions.

Senate Bill No. 71. By Senator Ayling of the Tenth District, entitled "An Act concerning Who May Practice Medicine, Surgery, and Midwifery," providing for amendment of Section 4714 of the General Statutes, exempting treatment of cancer from the provisions of the statute.

To the Committee on Public Health and Safety.

Senate Bill No. 106. By Senator Ayling of the Tenth District, entitled "An Act concerning Registered Physicians," providing for equal privileges to all reputable registered physicians in every hospital receiving State aid.

To the Committee on Public Health and Safety.

House Bill No. 123. Entitled "An Act amending Section 4715 of the General Statutes, concerning the Practice of Medicine, Surgery, and Midwifery," providing that the license of any State Board of Medical Examiners in the United States may be accepted in lieu of examination required of practitioner of medicine, surgery, or midwifery; provided satisfactory evidence is presented of academic and medical education required by State Board of Health, and provided such license has been issued after a State examination of the same grade and kind as required by the State Board of Health.

To the Committee on Judiciary.

PROPOSED LAWS IN RELATION TO VACCINATION.

HOUSE BILL NO. 310.

AN ACT CONCERNING THE VACCINATION OF SCHOOL CHILDREN.

Be it enacted by the Senate and House of Representatives in General Assembly convened :

Section 2161 of the Revised Statutes is hereby amended to read as follows:

"Section 2161. Vaccination of School Children." "The Board

of School Visitors, Town School Committee or Board of Education shall require every child to be vaccinated before being permitted to attend a public school under its jurisdiction, except in cases where a reputable physician shall furnish a certificate giving the reasons, and satisfactory to such board or committee, that vaccination would be dangerous to the health of the child.

If the parents or guardians of any child are unable to pay for such vaccination, the expense thereof shall, on the recommendation of said board or committee, be paid by the town.

Said board or committee may exclude from any school under its supervision all children under five years of age whenever in its judgment the interest of such school will be thereby promoted.

HOUSE BILL No. 115.

AN ACT CONCERNING VACCINATION OF CHILDREN IN PUBLIC SCHOOLS.

Be it enacted by the Senate and House of Representatives in General Assembly convened :

That the Board of Health shall have the right to require the vaccination of all children in the public schools when small-pox shall become endemic or epidemic, and that the Board of School Visitors or the School Committee shall have the right to refuse admission to unvaccinated children whenever, in the judgment of the Board of Health, their presence shall be inimical to the well-being of others.

HOUSE PETITION No. 77.

To the Honorable Senate and House of Representatives in General Assembly convened :

AMENDMENT TO STATUTE No. 2161.

After the words "Board of Education," add the words *In case of an epidemic.* So that the Statute will read:

The Board of School Visitors, Town School Committee or Board of Education, *in case of an epidemic* may require every child to be vaccinated before being permitted to attend a public school under its jurisdiction.

HOUSE BILL No. 316.

AN ACT CONCERNING VACCINATION OF CHILDREN IN PUBLIC SCHOOLS.

Be it enacted by the Senate and House of Representatives in General Assembly convened :

SECTION 1. Section 2161 of the General Statutes of 1902 shall be and hereby is amended to read as follows: The Board of School Visitors, Town School Committee, or Board of Education may require at such times as small-pox shall become epidemic the vaccination of every child attending any public school under its jurisdiction and may at such times refuse admission to any and all unvaccinated children

whose presence might be inimical to the well-being of others. If the parents or guardians of any children are unable to pay for such vaccination, the expense thereof shall, on the recommendation of said board or committee, be paid by the town. Said board or committee may exclude from any school under its supervision all children under five years of age whenever in its judgment the interest of such school will be thereby promoted.

SEC. 2. This act shall take effect from its passage and any and all acts or parts of acts inconsistent herewith shall be and are hereby repealed and any rules or regulations of local Health Boards, Health Officers or Public School authorities contrary hereto shall be null and void.

HOUSE BILL No. 12.

AN ACT CONCERNING VACCINATION.

Be it enacted by the Senate and House of Representatives in General Assembly convened :

SECTION 1. Section 2550 of the General Statutes of 1902 is hereby amended to read as follows :

The Board of School Visitors, the Town School Committee, the Board of Education, the Health Officers, or Boards of Health may adopt such measures for the general vaccination of the inhabitants of their respective towns, cities, boroughs or districts as they shall deem proper and necessary to prevent the introduction or arrest the progress of small-pox. Provided that no person shall be compelled to be vaccinated against his will, or if he be a minor, against the will of his parent or guardian, and the expenses in whole or in part of such general vaccination shall upon their order, be paid out of the town, city, borough, or district treasury, as the case may be.

SEC. 2. Section 2551 of the General Statutes of the Revision of 1902 and all acts and parts of acts inconsistent herewith are hereby repealed.

SEC. 3. This act shall take effect from its passage.

HOUSE BILL No. 459.

AN ACT CONCERNING VACCINATION.

Be it enacted by the Senate and House of Representatives in General Assembly convened :

That Section 2551 of the General Statutes is hereby repealed.

SUBSTITUTE FOR HOUSE BILL NO. 123.

STATE OF CONNECTICUT,)
 HOUSE OF REPRESENTATIVES,)

HOUSE OF REPRESENTATIVES, April 1, 1903. The Committee on Public Health and Safety reported through Mr. Ford of Washington, Chairman of the Committee on the part of the House, that the bill ought to pass.

AN ACT CONCERNING THE PRACTICE OF MEDICINE,
 SURGERY, AND MIDWIFERY.

GENERAL ASSEMBLY,)
 JANUARY SESSION, A.D., 1903.)

Be it enacted by the Senate and House of Representatives in General Assembly convened :

SECTION 1. Section 4715 of the general statutes is hereby amended to read as follows : No person shall obtain a certificate of registration as in section 4714 required until he has passed a satisfactory examination before one of the examining committees appointed for the purpose by the State Board of Health, *except as hereinafter provided*, nor until he has filed with said Board duplicate certificates signed by a majority of said examining committee, stating that they have found him qualified to practice either medicine, surgery, or midwifery, nor until he has filed with said Board duplicate statements subscribed and sworn to by him upon blanks furnished by said Board, giving his name, age, place of birth, and present residence, stating of what medical college he is a graduate, and the date of such graduation, together with such other information as shall be required by said blanks.

No person shall be eligible to said examination until he presents to the committee, by whom he is to be examined, satisfactory evidence that he has received a diploma from some legally incorporated medical college.

Any one of the examining committees appointed under the provisions of section 4716 may accept the license of any State Board of Medical Examiners of any state in the United States or in the District of Columbia in lieu of said examination, provided the applicant shall present such license to the examining committee before whom he appears, together with satisfactory evidence that such license has been issued after a State examination of as high a grade and of the same kind as that required by said examining committee, that he is a resident of this State or that he intends in good faith to permanently reside herein, that he has been in actual practice for a period

of at least six months in the year immediately preceding the date of his application, and that he is of good moral character and professional standing; and upon the payment to said committee of the sum of fifteen dollars he may receive a certificate of the approval of such license by said examining committee.

Any person passing such examination *or obtaining such certificate of approval* and filing said certificates and statements shall receive from said State Board of Health, upon payment of two dollars, a certificate of registration, which shall state that the person named has been found qualified so to practice.

SEC. 2. Section 4718 of the general statutes is hereby amended by striking out in the thirteenth and fourteenth lines thereof the following words: "An applicant, rejected by an examining committee, shall not be eligible to re-examination until after the expiration of twelve months" and inserting in lieu thereof the following: "An applicant rejected by an examining committee shall not be eligible to examination before either of the other examining committees until after the expiration of twelve months, but may be re-examined by the committee before whom he appeared, at any subsequent meeting of said committee."

SEC. 3. This act shall take effect from its passage.

It was moved and a vote of thanks was tendered the Committee for its very valuable work. The Committee having incurred considerable expense in its work, Dr. Wolff moved that thirty dollars be taken from the treasury to reimburse it and this was ordered.

The Committee on Honorary Members recommended the election of the nominee of last year, Dr. Reynold Webb Wilcox and proposed for further election Dr. William Osler of Baltimore. The report was accepted and the Secretary cast his ballot for Dr. Wilcox for honorary member.

The Report of the Committee on Medical Examinations was read by Dr. C. A. Tuttle.

COMMITTEE ON MEDICAL EXAMINATIONS.

To the President and Fellows of the Connecticut Medical Society:

Your Committee, appointed to examine applicants for license to practice medicine, herewith presents its tenth annual report. The report contains the usual number

of suggestions and requests, and also the usual rehearsal of the ever-new difficulties encountered. The committee has assembled six times and in accordance with the law has held three examinations, each extending throughout two days. All have been held in New Haven and all members have been present at each meeting. We have examined eighty-seven candidates for license in general practice, being five more than last year. Certificates of qualification have been granted to seventy-six or 87.4 per cent. The percentage rejected, viz.: 12.6 per cent., is lower than in any previous year, while the papers have been more rigidly and critically marked. From this it is fair to assume a higher requirement on the part of medical educators, due largely to the enforcements of the medical practice laws in the various States. We have also examined six in midwifery alone, and have granted certificates to four.

In several previous reports the committee has asked for some modification of the law which would allow it to accept candidates who have passed examinations in other States without their undergoing an examination at its hands. The energetic work of our Legislative Committee in connection with Dr. Ford of Litchfield County, bids fair to secure for us, in the near future, some discretionary power in the matter. While the working of the amendment promises to present many intricate practical problems for the Examining Committee to solve, yet it is prepared to assume them as this amendment will allow Connecticut to act in harmony with several other advanced States. That we should be justified in accepting many who have passed other State examinations is shown by the following statement. Of the sixteen examined at the March meeting, eight had been examined by and passed successfully, other State boards, seven in number. Of this eight, three had passed two other boards—all of the sixteen passed our examinations. These candidates were unanimous in declaring the Con-

necticut examinations as searching and exacting as any they had undergone.

The Medical Practice Act has now been in force a decade, long enough to justify our reflecting and summarizing. Allowing the first five years as experimental, we find that the number of regular physicians, licensed in the last five years has been two hundred and eighty-three. In 1898 there was one physician to each five hundred and seventy-nine of population, and in 1903 there is one physician to each five hundred and ninety-three of population. There are now 1,601 licensed physicians in Connecticut. Reviewing these figures we see that the increase has not kept pace with the increased percentage of population. This is in striking contrast to the decade immediately preceding the act. While this gives encouragement as to the work done in raising the educational standard of medical men entering our State, it must not be accepted as satisfactory and thus lessen our efforts to do much more. Higher and more rigid requirements must be exacted for entrance to our Medical Colleges and the degrees given by them must represent higher and higher qualifications. I hope that the consideration of the entrance requirements will be the basis of the next amendment, advised by our Legislative Committee, lest we find ourselves out of the advance guard of States, and in the humiliating position of Pennsylvania, where by the defeat of the Ray Bill, Pennsylvania as a commonwealth has placed itself on record as disapproving any effort to raise the standard of medical education. Nearly all of our neighboring states have some such preliminary requirement. New Jersey has just secured an amendment by which candidates must have not only a common school education, but a diploma, issued after four years of study in a normal, manual or high school of the first grade in the State. The laws of the State of New York demand of a prospective student

in medicine, a preliminary education, equivalent to that obtained in a four years' course in any of the public high schools recognized by the regents as maintaining a satisfactory standard. Ohio, by a recent enactment requires a diploma from a reputable college granting a degree of A. B. or B. S. or equivalent degrees; a diploma from a normal or high school or seminary legally constituted, or a certificate of his having passed an examination conducted under the direction of the State Board of Medical Registrators, an examination by certified examiners, none of whom shall be either directly or indirectly connected with the medical college. The Supreme Courts of many States have held that those who have not had a sound preparatory education are not qualified to enter upon either the study or the practice of law. Why should the study and practice of medicine, to whose followers are entrusted the lives of our citizens, not be equally safeguarded, especially as the State furnishes gratis, to all who will accept it ample opportunity to fit themselves thoroughly for the work?

I wish to cite again in this report the cumbersomeness and absurdity of having in our State, three or four different examining boards. Dr. ——— after practicing illegally in one of our cities, was complained of, prosecuted in the fall of 1901, convicted and fined \$100, which he paid. In the winter of the same year he was again prosecuted, a second conviction secured, was fined \$200. This he forfeited. In March, 1902, he appeared before our Committee and utterly failed to present a paper worthy a medical man. After some braggadocio and intimidation he decided not to thrash the entire Committee, and peacefully appeared again in July. He made this time a more signal failure than before. He then left the State for a few weeks but has recently returned and having taken an examination before a committee of another Society he has secured the signatures of three members of the Committee, the law making this number

sufficient to pass him. The other two members knowing his history, refused to sign. He now proposes to bring a mandamus against the State Board of Health to compel it to issue to him a license.

Another difficulty with which the committee has to contend is the matter of numerous letters and personal interviews of the doctor friends of the unsuccessful candidate. It has seemed to be assumed in not a few cases that the Committee has some personal grudge against the rejected man. In one case the candidate, himself, interviewed each member of the Committee separately, and one member because of his pugnacious and audacious attitude was obliged to terminate the interview. In behalf of this same man, a good practitioner urged his cause to the writer with the following argument: "The Chamber of Commerce should get after you and compel you to pass him, for if you do not, he, having married a rich girl in this city, will move away and take \$75,000 out of the town." The rejected man has been lobbying bills in our Legislature of late, which are in purpose to help him wage a contest against the Committee of this Society.

Two members of the Committee, Dr. Garlick and the Secretary and Dr. J. W. Wright, an ex-member attended the New England Conference of Medical Examiners and Licensing Boards in Boston on January thirty-one, 1903. The day was given over to discussion of medical, educational and licensing topics with much profit to all. Dr. J. W. Wright of Connecticut was re-elected President.

With this year ends the writer's term as a member and Secretary of the Committee, he having been appointed in 1900 to fill the unexpired term of Dr. Mailhouse, resigned.

Respectfully submitted,

CHARLES A. TUTTLE,
Secretary.

Appended is a list of successful candidates—a set of new rules and the questions asked in the November examination:

The following is a list of the successful candidates:

- Lange, Alfred, L. I., Med., Col., 1865.
- Engelke, Chas., P & S., N. Y., 1902.
- Williams, A. H., Harvard, 1902.
- Otterson, R. A., Jeff., 1902.
- Sheedy, G. F., Yale, 1902.
- Harris, R. P., Woman's, Phil., 1902.
- Boardman, A. K., U. of P., 1899.
- Judd, A., P & S., N. Y., 1902.
- Cronin, M. L., P. & S., Atlanta, 1902.
- Brainard, I. E., Yale, 1902.
- Heacox, F. L., Jeff., 1902.
- Voebel, B. H., Balt., Med., 1901.
- Kowalewski, V. A., Yale, 1902.
- Vail, G. F., U. of P., 1902.
- Tarbell, H. A., Yale, 1900.
- Lockwood, D. F. H., Yale, 1901.
- Walsh, Thomas, U. of Vt., 1902.
- Emmett, F. A., Yale, 1902.
- Brainard, C. B., Yale, 1898.
- Hartshorn, W. E., U. of Min., 1902.
- Goodrich, W. A., Med. Chi., 1902.
- Cox, R. B., McGill, 1902.
- Seranton, W. B., P. & S., N. Y., 1882.
- Bangs, D. C., Balt. Med., 1902.
- Thorn, W. C., Cornell, 1902.
- Steele, H. M., Johns Hopkins, 1902.
- Bray, H. T., U. of Vt., 1902.
- Ives, S. E., Woman's, Penn., 1898.
- Ferris, P. A., Syracuse, 1902.
- Ward, B. R., Yale, 1898.
- Pyle, P. W., P. & S., N. Y., 1902.
- Avery, J. W., U. of Vt., 1897.
- Fox, D. A., U. & Balt., 1902.

- Morn, O. A., Yale, 1902.
Williams, W. M., Johns Hopkins, 1901.
Waterhouse, H. E., P. & S., N. Y., 1902.
Cooney, W. J., Yale, 1902.
Bartlett, R. L., Tufts, 1897.
Hale, R. C., Tufts, 1901.
Nelson, A., U. & Bell., 1899.
Evans, J. H., P. & S., N. Y., 1902.
Murphy, W. H., Bell., 1897.
Sullivan, M. D., Cornell, 1900.
Pease, C. W., Dart., 1899.
Beransky, D., Yale, 1902.
Maher, T. F., Yale, 1901.
Moore, J. D., Yale, 1902.
Munger, W. R., Yale, 1898.
Stilwell, J. G., U. of Louisville, 1902.
Guion, C. C., Bell., 1899.
Leverty, C. J., U. & Bell., 1901.
Lloyd, H. W., Med. Chi., 1902.
Stetson, P. R., Yale, 1902.
Vermelye, W. H., P. & S., N. Y., 1870.
Campbell, S. S., U. of Vt., 1902.
Frommi, E. T., Milwaukee, Med., 1897.
Stall, H. F., P. & S., N. Y., 1902.
McQueen, A. S., Yale, 1901.
Gillis, J. A., P. & S., Chicago, 1902.
Turney, L. F., Yale, 1902.
Sherwood, S. W., U. of P., 1902.
O'Brien, F. A., Yale, 1902.
Foster, D., Yale, 1899.
Tracey, R. G., Yale, 1900.
Wells, H. W., Balt. Med., 1899.
Grant, W. V., Boston Unv., 1902.
Hazen, R., U. of Vt., 1898.
Smith, E. S., Cornell, 1900.
West, H. B., Dartmouth, 1900.
McGovern, E. F., U. & Bell., 1901.

- Sansone, Nicola, Gross, 1902.
Naughton, J., P. & S., 1896.
Meyers, A. H., Medico, Chic., 1902.
Pattie, J. H., U. & Bell., 1900.
Mason, L. I., P. & S., N. Y., 1901.
Adams, H. E., Yale, 1902.

RULES FOR EXAMINATION.

1. Examinations will be held on the second Tuesday of March, July and November, at the City Hall, New Haven, beginning at 9:30 A. M., and lasting two days, closing at 4:30 P. M. of the second day.

2. Examinations will be conducted in writing in the English language.

3. Examinations for general practice consist of ten questions in each of the following branches: 1. Anatomy. 2. Surgery. 3. Materia Medica, including therapeutics. 4. Practice, including pathology and diagnosis. 5. Obstetrics, including gynecology. 6. Physiology. 7. Medical Chemistry and hygiene.

4. In order to be admitted to practice, the applicant must obtain a general average of 75 per cent. In no branch shall his percentage be less than 60, and in Practice, Obstetrics and Surgery the minimum requirement will be 65 per cent.

5. Examination fee \$15.00, payable in advance on the first day of examination.

6. Candidates once rejected must pay full fee on another trial.

7. All candidates must be graduates of some reputable Medical College and must present their diplomas, (or a certificate from the Dean of the Medical College) for inspection, to the Secretary of the Committee at the opening of the session. Those having Bachelor's degrees in Arts or Sciences will please so specify.

8. Candidates must make formal application (blank

enclosed) to the Secretary at least five days before the date of the examination.

9. Questions used at some former examinations will be found in the yearly Proceedings of the Connecticut Medical Society—the Board is unable to supply copies.

RULES FOR CONDUCTING EXAMINATIONS.

First. Help of every kind must be removed from the reach and sight of the candidate. Any candidate detected trying to give or obtain aid shall be instantly dismissed from the room, and his or her paper for the entire work canceled.

Second. Questions must be given out and answers collected punctually at the time specified for that section.

Third. If the candidate withdraws himself or herself without permission, from the sight of the examiner, his or her examination shall be closed.

Fourth. All examinations shall be in writing. Pens, blotters, paper and ink will be supplied by the Secretary.

Fifth. The examination shall continue two days, the sessions of the first day being from nine-thirty to eleven, eleven to one, two to four, four to six respectively; the sessions of the second day being the same, but closing at four-thirty instead of six o'clock.

EXAMINATIONS IN MIDWIFERY.

1. Examinations in Midwifery will be held at the same time and place as for General Practice and under the same rules.

2. Applicants to practice Midwifery will be examined in Midwifery only and must obtain a marking of 75 per cent.

3. Examinations will be in writing, but may be taken in the language of the applicant. The applicant to fur-

nish and pay an interpreter acceptable to the Committee.

4. The examination fee will be \$10.00 and is payable at the time of taking the examination.

It is unlawful to practice in this State while waiting for an examination.

STATE OF CONNECTICUT MEDICAL EXAMINING COMMITTEE.

PRACTICE, PATHOLOGY AND DIAGNOSIS.

(Two and one-half hours), March 10-11, 1903.

1. Give the symptoms and course of Parenchymatous Nephritis.

2. Under what condition is the area of Cardiac dullness increased, under what diminished?

3. Describe a case of Tubercular Meningitis.

4. Give the etiology and morbid anatomy of Pleurisy with effusion.

5. Differential diagnosis between Pyelitis and Cystitis.

6. Differential diagnosis between simple Conjunctivitis and Gonorrheal Ophthalmia.

7. Give the symptoms and pathology of Poliomyelitis Anterior.

8. What is the character of the stools in Typhoid Fever, Cholera Infantum, Biliary Obstruction and Dysentery?

9. What are the complications of Measles?

10. Give the pathology of Carcinoma of the Stomach.

OBSTETRICS AND GYNECOLOGY.

(Two hours.)

1. Define retroversi-flexio. From what must it be differentiated?

2. What are uterine polypi? What are the symptoms?

3. What is Alexander's operation, and what the objections to it?

4. Which portion of the fetal head is the least injured by compression of instruments?

5. State the cause of the rigidity of the cervix in the first stage of labor, and the method for overcoming it.

6. Give the cause of prolapse of the funis. The treatment.

7. Name the conditions which justify the application of forceps.

8. Give the cause, symptoms and treatment of simple catarrhal vaginitis.

9. Name the methods of operative interference with high arrest of the posterior occiput.

10. Give the treatment of post-partum hemorrhage.

ANATOMY.

(Two hours.)

1. Name the different kinds of Articulations and give an example of each.

2. Give the relations of the femoral artery, its origin, and name the branches given off as it descends the leg.

3. Give the origin of the fifth pair of Nerves (trifacial) and name the divisions of the same and distribution.

4. Describe the internal abdominal ring.

5. Describe the ligaments of the hip joint.

6. Outline the position of a normal heart and name the point at which the apex beat will be found.

7. Describe the Uterus, giving normal size, form and relations.

8. Describe the Mesentery.

9. What vessels and nerves are found in Scarpa's triangle? Give their relation. Of what Surgical importance is this triangle?

10. Give a short general description of the skin, its origin and period of development.

PHYSIOLOGY.

(One and one-half hours).

1. Mention the constituents of the Blood and describe the phenomenon of blood-coagulation.
2. Describe (a) the fetal circulation; (b) how does it differ from circulation after birth?
3. State the functions of the Sympathetic Nerves.
4. State the function of the Aqueous Humor of the Eye.
5. How is the average temperature of the body maintained? Give the normal temperature of the body as shown (a) by the mouth, (b) the rectum, (c) the axilla?
6. Give the function of the skin, lungs, kidneys, and state how impairment of one affects the other two.
7. Mention the erectile tissues of the body and explain their characteristic function.
8. What purpose is served in boiling starchy food-stuffs? Give reason for your answer.
9. Define physiology of pain; also sleep.
10. State the number of temporary teeth and the time and order in which they usually appear.

SURGERY.

(Two hours.)

1. Symptoms and pathological changes in Septicæmia?
2. Name the cardinal symptoms of inflammation in soft tissue?
3. Diagnosis of Retro-pharyngeal Abscess?
4. Cerebral Abscess from Ear disease, (a) location, (b) diagnosis, (c) treatment?
5. Describe Syphilitic Gumma of tongue, and give the differential diagnosis from Epithelioma when ulcerating?
6. Fractures of the Clavicle, (a) frequency, (b) varieties, (c) treatment?

7. Name the contra-indications to the use of ether as a general anesthetic and describe the precautions which should always be observed in its administration?
8. Symptoms of Carcinoma at pyloric orifice?
9. Describe repair in fracture of long bones?
10. Describe Lupus Vulgaris?

MATERIA MEDICA AND THERAPEUTICS.

(Two hours.)

1. What is the physiological action of Potassium Iodide and what are its incompatibles?
2. Name four Expectorants and give their method of action.
3. Give the physiological action of Acetanelid and its dangerous effects.
4. In what condition would you give infusion of Digitalis and Potassium Acetate and how would they act?
5. Name two nerve sedatives and state how they act.
6. How do the following emetics act: Ipecac, Apomorphine, Suphate of Zinc, Mustard?
7. Give the antidotes for Carbolic Acid, Strychnine, Arsenic.
8. How would you treat a case of Pneumonia?
9. How would you treat Nausea and Vomiting?
10. What would contra-indicate the use of Lavage of the Stomach?

CHEMISTRY AND HYGIENE.

(One and one-half hours.)

1. What are ptomaines, what leucomaines? Name some of each.
2. Describe the formation of uric acid in the system and why deposits are found in joints and cartilages.
3. How does carbonic acid act as a poison? How are the cases of poisoning by it treated?

4. How are biliary pigments recognized?
5. How may river water be purified?
6. Describe nuclein, how obtained, why used?
7. In which morbid conditions is the amount of urea in the urine increased, and in which diminished?
8. State the comparative composition of cow's milk and human milk.
9. Describe Ehrlich's reaction and its use.
10. Give the composition of normal urine.

The report was accepted.

The Committee to Consider the Recommendations in the President's address reported:

As a change of by-laws is already in the hands of a committee for careful consideration, we do not feel that at this time any recommendation is called for from this committee.

We would recommend, as suggested by the President, strengthening our own Society by bringing within its folds every eligible physician within our commonwealth.

The suggestion of placing this Society upon record by some suitable resolution to assist the American Medical Association to obtain a National Incorporation meets our approval.

A motion was made and adopted that we tax each member \$2.75.

On motion of Dr. Godfrey the following resolution was adopted:

Resolved, That the Connecticut Medical Society petition the Congress of the United States to incorporate the American Medical Association and that the President and Secretary of the Connecticut Medical Society be authorized and directed to correspond with the Senators and Representatives of the State in relation to the same.

The Secretary read the following letter from Sir James Grant, one of our honorary members, which was received with applause:

150 Elgin Street, Ottawa.

May 18, 1903.

N. E. Wordin, Esq., M.D.,

My Dear Sir:

I wish to tender the ancient and honorable Connecticut society, my warmest thanks for a copy of the "Annual Announcement," in which let me say, I am deeply interested. For years past I have looked forward to the pleasure of meeting the medical fraternity, Hartford and surrounding country, to have the pleasure also of shaking hands with many I had the pleasure of meeting at the Newport assembly, twelve or fifteen years ago. Time is passing rapidly and the opportunities grow less yearly. The Royal Society of Canada, of which I am the President meets here this week, in consequence of which, I fear, I shall not have the pleasure of joining you this coming gathering, but let me say, that although absent in body, I shall be with you in spirit. Wishing you every possible degree of success in advancing the great cause of science in the varied departments of our noble profession, which in the past has also been upheld by many noble master minds in your great Republic,

Thanking you again most kindly,

Very sincerely yours,

J. A. GRANT.

In accordance with Chapter VII, Sec. 3, By-laws American Medical Association the President appointed Dr. W. H. Carmalt, member of the Committee on National Medical Legislation.

The one hundred and eleventh annual meeting of the President and Fellows thereupon adjourned.

N. E. WORDIN,

Secretary.

THE ANNUAL CONVENTION.

The Annual Convention was called to order at 4:30, immediately after the meeting of the President and Fellows. The first thing in order was the reading of the Secretary's report.

SECRETARY'S REPORT.

Our present membership is seven hundred and thirteen, a gain of eighteen over last year's number. The growth is regular and healthy.

By counties the changes are as follows:

Hartford, 1902,		164	
New members,		14	
		<hr/>	
		178	
Removed,	3		
Died,	2		
	<hr/>	5	
		<hr/>	
		173	a net gain of 9
New Haven,		212	
New members,		6	
		<hr/>	
		218	
Removed,	2		
Transferred,	1		
Died,	2		
Resigned,	1		
	<hr/>	6	
		<hr/>	
		212	a net gain of 1

New London,		45	
New members,	2		
Reinstated,	5		
Returned to State,	1		
	—	8	
Transferred,		1	
	—	7	
		—	
		52	a net gain of 7
Fairfield,		130	
New members,	1		
		—	
		131	
Died,	1		
Dropped,	2		
Left the State	2		
	—	5	
		—	
		126	a net loss of 4
Windham,		35	
New members,	2		
		—	
		37	a net gain of 2
Litchfield,		52	
New members,	4		
Reinstated,	1		
Transferred,	1		
	—	6	
		—	
		58	
Dropped,	3		
Left the State,	1		
Removed	1		
	—	5	
		—	
		53	a net gain of 1

Middlesex,		43	
New members,		2	
Transferred,		1	
		<hr/>	
		46	a net gain of 3
Tolland,		16	
Removed	1		
Died,	1		
	<hr/>	2	
		<hr/>	
		14	a net loss of 2

The membership by counties is:

Hartford,	173
New Haven,	212
New London,	52
Fairfield,	126
Windham,	37
Litchfield,	53
Middlesex,	46
Tolland,	14
	<hr/>
	713

The largest county is larger and the smallest smaller than ever before in their history. In 1833 Tolland county had twenty-six members; in 1823, eighteen.

The names of the new members with graduation and residence are:

Ellen Pembroke O'Flaherty, Cornell University, 1901, Hartford.

Leander Zebinah Skinner, Baltimore Med. Coll., 1894, Windsor.

Charles Oscar Purinton, Yale, 1900, Ph. B., Yale, 1897, West Hartford.

Edward Lancaster Whittemore, Univ. Virginia, 1894, Ph. B., Yale, 1897, New Britain.

Thomas Elmer Reeks, Univ. Maryland, 1901, New Britain.

- William S. Gillam, Univ. Penna., 1888, South Manchester.
 William Henry Cushing, Bellevue, 1892, Southington.
 Howard Frost King, Albany Med. Coll., 1899, Windsor.
 Thomas Aloysius Mulcahy, P. & S., New York, 1901,
 Hartford.
 William Burton Scranton, P. & S., New York, A. B., Yale,
 1878, East Hartford.
 Marian Walker Williams, Johns Hopkins, 1901, A. B.,
 Radcliffe, 1897, Hartford.
 Allen Hamilton Williams, Harvard, 1901, A. B., Harvard,
 1901, Hartford.
 Clifford Brewster Brainard, Yale, 1898, Ph. B., Yale,
 1894, Hartford.
 Edwin Hamilton Bidwell, Dartmouth, 1894, North Haven.
 Louis J. Thibault, Yale, 1900, Waterbury.
 Thomas Joseph Bergin, Yale, 1899, A. B., Yale, 1896,
 New Haven.
 Francis Patrick Henry, Yale, 1898, New Haven.
 George McClellan Burroughs, Baltimore Medical, 1900,
 Madison.
 Thomas Vincent Hynes, Yale, 1900, New Haven.
 Dennis Joseph Shahan, Univ. Vermont, 1885, Norwich.
 Alphonse Fontaine, Laval University, Montreal, 1892,
 Taftville.
 Edward Dorland Smith, Yale, 1899, A. B., Yale, 1896,
 Bridgeport.
 Arthur Alverdo Chase, Harvard, 1901, Plainfield.
 Robert Child Paine, Dartmouth, 1900, Thompson.
 John Geikie Adam Trinity, 1900, North Canaan.
 David Dillon Reidy, Medico-Chirurgical, Phila., 1899.
 William John Hogan, Yale, 1898, Torrington.
 Robert Hazen, Univ. Vermont, 1898, Thomaston.
 David Dillon Reidy, Medico-Chirological, Phila., 1899,
 Winsted.
 Charles Ambler Ryder, Yale, 1898, Cornwall Bridge.
 George Streit, Yale, 1901, Middletown.
 Arthur Milon Pratt, Bellevue, '92, Deep River.

Thirty-two in all. A strange thing is the almost entire disappearance of the New York colleges among this list. Bellevue and the University have each one, College of Physicians and Surgeons has two. In fact nineteen colleges are represented among the thirty-three graduates. Of these ten are from Yale, two each from Harvard, Dartmouth, University of Vermont, Baltimore Medical College, and one each from thirteen different institutions. It is a very encouraging thing that there have been quite a number of accessions from those who, having been dropped for non-payment of dues, have paid up and resumed their membership. The failure to pay is sometimes a matter of forgetfulness on the part of the member, sometimes a failure of urgency on the part of the County Clerk. It is the most frequent cause of the loss of members and the return to the Society in this way is very refreshing.

Another cause for rejoicing is the number of the new men who have received scientific or academic degrees. There are six Bachelors of Arts and three Bachelors of Philosophy, about twenty-five per cent. of the entire number.

Professor Thorndike of Columbus in an article on *The Careers of Scholarly Men in America has called attention to the fact that medicine has not been a popular profession with scholarly graduates. The percentages range from six to four from 1840 to 1885 and are 7.5 and seven for 1885-89 and 1890-94.

He makes comment: "The cause of the gain made by medicine from 1885 to 1895 is, one is tempted to think, the advance of medicine to the dignity of science and the introduction into college courses of electives in science. The former makes the career more attractive to the thinker, and the latter gives scientific capacities and interests a chance to become aware of themselves."

*Century Magazine, May, 1903, p. 154.

The deaths of the year have been few and confined to the counties of Hartford, New Haven and Tolland.

Dr. Henry Clinton Bunce was one of the oldest members of the Society. There are but five older remaining. Our remaining members who graduated in the earlier half of the nineteenth century received their diplomas in the years respectively 1837, two in 1843 and two in 1849.

Dr. Bunce graduated from the Yale Medical School in 1850 and the same year became a member of this Society. His name first appears upon the records as Clinton Bunce, Glastonbury. The Society numbered then 392. In 1853 when the annual meeting was held at "Gilman's Saloon," Hartford, Dr. Bunce was appointed a Fellow, but was the only one from Hartford county who was absent. A look at the attendance of the Fellows that year is refreshing. With the number of elected Fellows, two less than the number possible now, there were only six absentees. During the Civil War he was First Assistant Surgeon of the Fourth Regiment, Conn. Vols., which became the First Heavy Artillery. His commission was dated October 10, 1862.

Rufus White Griswold was born in Manchester in 1825. He began the study of medicine in the city of New York in 1850 at the College of Physicians and Surgeons, from which he graduated in 1854. He at once settled in Rocky Hill. His continual service there as physician covers a period of forty-nine years, as that of Dr. Bunce in Glastonbury covers a period of fifty-three.

He joined the State Society in 1854 and served it in various ways as he was called upon. He was Fellow in 1857, '65, '66, '79 and Vice-President by virtue of his position as President of the Hartford County Association in 1873. In 1891 when arrangements were being made for our centennial he argued that the anniversary should be held on the second Tuesday of October, 1891, as the Society would then be exactly one hundred years old.

His writings cover mostly replies to the questions sent

out by the Committee on Matters of Professional Interest in the State. These always treated the subject fully. In 1870 he gave the history of a fibrous tumor of the ovary in a girl thirteen years of age, and in 1857 wrote the obituary sketch of Sylvester Bulkley. He contributed to the Centennial exercises and the Centennial volume of our Proceedings contains an article entitled, Somewhat About the Materia Medica and Therapeutics of a Hundred Years Ago, which could not but be interesting. He was always in sympathy with the working of this Society and for the good of the profession. He had in his library a complete file of its Proceedings. He showed his faith by his deeds and had three sons, all of whom graduated and practiced in medicine.

Frank B. Tuttle died while President of the New Haven County Medical Association. Elected to the Presidency, he was never permitted to occupy the chair but his name appears as one of the Vice Presidents of this Society at the annual meeting a year ago.

He was a graduate of the Yale Medical School of the class of 1863 with Dr. T. M. Hills, a former President of this Society. The subject of his graduating thesis was Measles. He entered this Society the same year. His record upon the books is very meagre.

In 1870 he was honorably dismissed from membership by vote of the Society and in 1884 united again with it. He was a man of even temperament unifying the members of the profession in his town and for nearly forty years attended faithfully in season and out of season to the poor and the rich and the needy of Naugatuck.

Dr. Sherman Hartwell Chapman was named from his grandfather, Sherman Hartwell, who having established a trading post in the town of Warren, came to Bridgeport and earned a fortune. Dr. Chapman's father was employed as a clerk in the dry-goods store of L. B. Chittenden of New Haven and afterwards became a member of the firm, which was Chittenden & Chapman. The busi-

ness was later removed to New York and Mr. Chapman retired. Mr. Chittenden later acquired some public notoriety as Congressman from New York. Messrs. Chittenden and Chapman both married sisters, daughters of Sherman Hartwell. Dr. Chapman was born in New Haven, but entered college from Bridgeport, where his family then resided. He graduated from Yale in 1866. In the same class were Doctors L. D. Bulkley, G. P. Davis, and S. B. St. John, all members of this Society, Prof. Farnam and Judge J. M. Hall, President of the Consolidated Railroad. He immediately went abroad, but took his medical degree at the College of Physicians and Surgeons, N. Y., in 1869. Few men have had better facilities for study both at home and abroad than Dr. Chapman. He selected throat and ear diseases for a specialty, and was appointed Lecturer in that course at the Yale Medical School.

Frank Brownlie Newton was born, practiced medicine and died at Stafford Springs. The entire period covers less than twenty-nine years. He graduated from the University of Vermont in 1899. He was a son of Dr. Cyrus B. Newton who has practiced in the town for nearly half a century and who was President of this Society in 1893.

Among our list of Honorary members we have to note the loss of Dr. T. Gaillard Thomas.

The most important thing in our record of the past year is the proposed amendments to the By-Laws which have been brought about through the influence of the American Medical Association. Printed copies of these proposed amendments are herewith sent to all the members. The By-Laws were printed in the Proceedings for 1896 and 1898.

No notices of the semi-annual meetings of any of the County Associations were received at this office and but few for the annual meeting. This is the more to be regretted because the President has expressed his desire

of attending some of these gatherings and of meeting the members. We cannot keep in too close touch with one another, remembering that the benefit of each is helpful to all.

Respectfully submitted,

N. E. WORDIN.

Secretary.

Dr. Rodman was the first of the delegates to other societies to respond. As member of the House of Delegates of the American Medical Association, he rendered:

REPORT OF DELEGATE TO AMERICAN MEDICAL ASSOCIATION.

The House of Delegates met for the first time after the reorganization of The American Medical Association on June 10th, 1902, at Saratoga, ninety-two answering the roll-call. A business committee was appointed, to whom all new business was promptly referred, after which we listened to the address of the President, Dr. John A. Wyeth, of whom it may be said that he was properly desirous of expediting the transaction of all old business. There followed reports of the Secretary and Treasurer, indicative of growth and financial prosperity, the reading of the revised code of ethics and report of the committee on reciprocity. At subsequent sessions a large amount of business was offered and referred to the business committee. For a newly constituted body, having its own rules of order and procedure to formulate, it was a pronounced success, contrasting favorably with the previous methods of the Association. Dr. Frank Billings of Chicago was elected President; adjournment was to New Orleans.

The House of Delegates met informally in New Orleans on Monday, May 4th, 1903, adjourning to meet again at eight P. M., and thereafter held daily meetings at nine and at two. The usual reports were received and have been printed in the Journal. Two matters occupied much time and excited great interest. The one was

the revision of the code, the other the national incorporation of the Association. After opposition on the part of Dr. Reed of Ohio, who offered a substitute report on the code, a conference committee was appointed, and their report unanimously adopted with much enthusiasm. We now have principles of ethics, no longer a code with penalties. Regulation of professional conduct is relegated to the State Associations which are in affiliation with the Association.

National incorporation was presented by the trustees as a goal to be ultimately reached, but an adverse legal opinion was read, and immediate action was not recommended. A committee was, however, appointed, to obtain other legal advice. The matter is one that will not readily down. One hundred men will not continue to meet annually and spend their time in the transaction of the Association's affairs, knowing that their action has no legal force until subsequently ratified by a few of their colleagues in the State of Illinois.

An amendment to the Constitution offered by myself at the Saratoga meeting was adopted at New Orleans without modification, namely—to effect, that the House of Delegates shall hereafter meet at ten o'clock in the morning of the day before that fixed as the first day of the annual session. This you will recognize as another Connecticut graft. In this connection it may be noted that Dr. Allport of Chicago cited with approval the Connecticut enactment relative to examination of the eyes of school children, and that a resolution favoring similar legislation throughout the United States was adopted by the House.

Among reports of general interest was that of the committee on the Rush monument, to effect that about fifteen thousand dollars having been raised, the monument will be unveiled in Washington within a few months. Among resolutions adopted was one presented by Professor Welch petitioning President Roosevelt to

appoint on the Isthmian Canal Board a medical man familiar with tropical diseases.

No one could attend the sessions without being impressed with the earnestness and devotion to the interests of the Association on the part of the assembled delegates. Only one ever looking for the humorous might have smiled when there followed the reading of the lengthy report of the trustees, a postscript, as it were, the presentation of a new button, the insignia of the Association, or when after the election of Dr. Musser as President, the announcement was made that the Constitution required him to be then and there installed, and that as he had left for home, Dr. Billings must continue as President until the Constitution is amended so as to permit the installation of Dr. Musser next year at Atlantic City.

I modestly suggested that the installation be at once authorized by telegraph, but this did not appear to be taken seriously, and I for one, left on adjournment of the session not knowing whether we are to live under the old or the new régime.

To recite in detail the things proposed and said and done would leave no time for those who are to follow. It may be of interest to know that the members of the Association registering this year at New Orleans exceeded two thousand as was also the case at Atlantic City in 1900, while in 1901 and 1902, at St. Paul and Saratoga, the numbers were about eighteen hundred and fourteen hundred respectively.

C. S. RODMAN.

Dr. Brayton, one other delegate said that the position as a member of the council was more work than play. He thanked the society for electing him but he would rather be an ordinary member and go when he sees fit.

None of the delegates appointed to represent the society at the annual meetings of the societies of Maine, New

Hampshire, Vermont, Massachusetts, Rhode Island, New Jersey or New York, reported having performed their duty.

Dr. McKnight stated that he was present as delegate at the meeting of the Medical Society of the State of Pennsylvania at Allentown and reported a most enjoyable entertainment. Nothing more could be asked.

Valuable papers were read and discussed, the discussion being limited to five minutes for each speaker and this rule was adhered to. The meeting was on a par with any of the American Medical Association which he had ever attended. Was not prepared with a detailed report.

The report was accepted and as the feeling was so pleasant on the part of the Pennsylvania Society it was voted that the President and Secretary appoint a delegate to go to the meeting of this year. Doctors McKnight and Swasey were so appointed.

The reading of the regular papers was then begun, the first one being by Dr. Defendorf on The Early Symptoms of Dementia Precox. It was discussed by Dr. Keniston.

Dr. L. W. Bacon, Jr., followed with a very complete and scholarly paper on The Indications for Operation on the Thyroid Gland in Graves' Disease which was discussed at some length.

The Wednesday's session closed at 5:45.

THURSDAY, MAY 28.

The meeting was called to order at 10:15 A.M. and Dr. Steiner read his report on the Progress of Medicine. The President here announced the committee to propose by-laws in harmony with the suggestions of the American Medical Association in accordance with the vote taken at the meeting of the President and Fellows on Wednesday afternoon: E. J. McKnight, C. S. Rodman,

L. B. Almy, W. H. Donaldson, S. B. Overlock, Jerome S. Bissell, J. F. Calef, Eli P. Flint.

The reading of papers was continued, Dr. J. W. Wright presenting one on Tumors of the Mammary Gland which was discussed by Doctors Carmalt and M. M. Johnson.

The report of the Committee on Matters of Professional Interest in the State on the subject of Tuberculosis was presented and read by Dr. E. K. Root, Chairman.

Dr. A. A. Crane presented the subject of Leprosy in the Hawaiian Islands in an exceedingly entertaining manner.

The President here called upon delegates from Maine, New Hampshire and Vermont, introducing each State in an exceedingly happy little speech, but there were none to respond.

Massachusetts, he said, was ever at the head of Medicine and honored the profession with some of her brightest and best men.

Dr. L. J. Gibbs of Chicopee in reply said he was taken quite by surprise to come here and be announced in that way. He thought he had come to be entertained. Dr. Breck, his colleague, ought to be here. He could do the talking. It was a great pleasure for him. He had enjoyed the proceedings so far. It would be more entertaining for the meeting to hear papers than listen to him—more profitable to you, more pleasing to me.

Dr. Elwood of Springfield was seen in the audience and was called upon by the President as a personal friend.

Dr. Elwood said that like Dr. Gibbs he was not a talker. He was hoping to get an opportunity of speaking to his friend Dr. Shelton and to get him to overlook him. He had hoped to slip in unobserved but had failed in both attempts. He regretted the absence of Dr. Breck who could both entertain this assemblage and rep-

resent the Massachusetts Medical Society. He had heard one paper and anticipated pleasure in hearing others this afternoon. The list warrants expectation of a session both interesting and profitable. He congratulates the Connecticut Medical Society on its choice of a President. The President has reason to be proud of his position as presiding officer of such a body.

The President—Rhode Island is cozily wedged in between Massachusetts and Connecticut. She has some fine medical men. He remembers with pleasure the meeting of the American Medical Association at Newport. There was no response.

The President—New Jersey perhaps more than all other States in the Union organizes the largest corporations in the world. She takes them under her wing. One of the oldest of these corporations is the Medical Society of New Jersey. No one was present from that Society.

The President—The great Empire State is now on two legs. We all hope she will soon take one and make better strides.

Dr. L. C. Ager of Brooklyn said he was glad to see the delegate from New York placed last. He didn't know what to do. He is a member of the Publication Committee of his own Society. They have done a good work in the publication of the Medical Directory of New York, New Jersey and Connecticut. We think it is the best work in that line. The only way we can have it accurate is to get word from the individual members. He appealed to each one present to see that not only his own name is correct but also to see that the deaths, removals and other statistics are properly noted. He expressed the congratulations of the New York State Medical Association and had no idea that he would be the only one here to do it. Dr. Harris would be here later in the day. Would be in the city in time for the dinner.

The President—New Hampshire is the good State which gives Connecticut men such good air during the summer months. No response.

The President—Yesterday we received from Dr. McKnight who represented us last year a fine report from the meeting in Pennsylvania. That State has not forgotten us. Our relations are pleasant excepting that last year we could get no Pennsylvania coal. If the delegate can assure us that the medical men of that State had nothing to do with it we will be pleased to receive her.

The delegate simply arose and bowed her acknowledgments.

The President—The delegate from Pennsylvania offers no remarks but she bears the greetings of her great State. We know that she had nothing to do with the coal strike but on the other hand was perhaps a medium in bringing about the arbitration.

Dr. St. John now took the chair and announced the President's Address, The Drama in Medicine.

This was listened to attentively by the large audience present, the room being completely filled and was followed by prolonged applause.

Announcement was made that the session was adjourned until 1:45 o'clock.

THURSDAY AFTERNOON.

The meeting was called to order at 2:15 P.M.

Dr. McKnight made a motion which was carried, that as so many papers remain unread, the time for each paper be limited to fifteen minutes.

Dr. Phelps read the second part of the report on the Progress of Medicine.

The Dissertation, Disease. What is it? was read by Dr. Pratt.

Dr. Monroe of Boston was called upon. He replied: I have nothing to say, but if I can say anything during the discussions I shall be glad to do so.

The President stated that he found it desirable to change the order of the papers and not take everything as it was set down upon the program, on account of some of the gentlemen desiring to get away on early trains.

The President—We will listen to a paper by Dr. Ely on The Treatment of Acute Opium Poisoning. This called forth discussion by Doctors Carmalt, Pratt and Wolff.

The President—The next paper we will hear is one on The Surgery of the Gall-Bladder by Dr. M. M. Johnson.

Dr. Ramsay followed with A Discussion of the Etiology and Modern Treatment of Eclampsia.

At the expiration of the time limit the time was extended, on motion of Dr. Goodwin and the paper was finished.

Dr. Howe read citing Ten Operations for Colocystitis With and Without Gall Stones.

Dr. McKnight's paper Contusion of the Intestine Without Lesions of the Abdominal Wall was next read.

The paper of Dr. Bulkley on The Finsen Light, X-Rays and High Frequency Electrical Currents in Certain Diseases of the Skin was read.

Dr. Sullivan—I desire to present a most unusual case of Pseudo-Leukemia, recently met with in my practice which will, I am sure, interest the gentlemen present, inasmuch as the subject of the paper relates somewhat to the case I now present. As you know, but very little is known of the etiology of this disease, much less of its essential pathology; but we do know it has especial predilection for lymphoid tissue, upon which the microbe exercises its pathogenic effect, and that it affects the glands from region to region. It bears some resem-

blance to the granulomata, but differs in this: the former rarely degenerates, while the latter quickly and frequently does.

For the first time in the history of medicine, so far as I know, Nicholas Senn of Chicago, whom we all know to be most conservative in the statements that he gives out to the medical world, has recently published, with photographs, the cure of six cases of this frightful disease with the light treatment. First having given up in despair getting any results from either surgical or therapeutic remedies, and as a dernier resort he used the X-Ray on the premise that this disease is due to a microbe; and, to his great satisfaction, records the positive cure of six exaggerated cases. The photographs of these cases I have, but the most severe one is comparably insignificant to the case which is before you. Senn states that a minute application of the X-Ray over the region affected and thirty-nine treatments was the longest period required for a cure. My only object in presenting this unusual case is to bring before the members of the Society its peculiar characteristics and the frightful deformities consequent to this disease; and if what Nicholas Senn states is true, that this little lady, who bears her affliction most happily, can be cured with the X-Ray, an effort will be begun at once and, with the assistance and the suggestions of Dr. Bulkley, who has most kindly volunteered to give whatever aid his most extensive experience may suggest, I will be able to present the case to you again at a later period entirely cured, I hope."

Chairman—Prof. Raymon Guiteras and Prof. R. H. M. Dawbarn are with us to-day in the hall. I am very glad to see them and shall expect them to be at the banquet to-night, and greet them in the name of the Connecticut Society.

I desire, gentlemen, to extend to the Society my thanks for the courtesy that has been shown me this evening

and take pleasure in introducing to you Dr. St. John, my old friend and your President.

Dr. St. John, as Chairman—The next thing on the programme is "The Present Status of the X-Ray as a Diagnostic and Therapeutic Measure in Pulmonary Diseases" by Prof. J. Edward Stubbert of New York.

This paper was fully illustrated by stereoptic slides and lantern manipulated by Dr. Wolff.

The following is the list of papers referred to the Publication Committee:

"The Early Symptoms of Dementia Precox"—A. R. Defendorf, Middletown.

"Tumors of the Mammary Glands"—J. W. Wright, Bridgeport.

"The Indications for Operation on the Thyroid Gland in Graves' Disease"—L. W. Bacon, Jr., New Haven.

"The Surgery of the Gall-Bladder"—M. M. Johnson, Hartford.

"Ten Operations for Colocystitis With and Without Gall-Stones"—H. C. Howe, Hartford.

"Contusion of the Intestine Without Lesion of the Abdominal Wall"—E. J. McKnight, Hartford.

"Some Features of Leprosy in the Hawaiian Islands"—A. A. Crane, Waterbury.

"The Medical Side of the Alcoholic Problem"—T. D. Crothers, Hartford.

"Connecticut Climate and Diseases of the Respiratory Tract"—M. H. Gill, Hartford.

"The Treatment of Acute Opium Poisoning"—John Slade Ely, New Haven.

"A Discussion of the Etiology and Modern Treatment of Eclampsia"—Otto G. Ramsay, New Haven.

"The Present Status of the X-Ray as a Diagnostic and

Therapeutic Measure in Pulmonary Diseases"—J. Edward Stubbett, New York.

"The Finsen Light, X-Rays and High Frequency Electrical Currents in Certain Diseases of the Skin"—L. D. Bulkley, New York.

"Facts, Fads and Fallacies in the Treatment of Tuberculosis"—M. J. Brooks, Stamford.

"The Modern Treatment of Tuberculosis"—J. B. Kent, Putnam.

"Diphtheria"—F. L. Smith, Stafford Springs.

"Two Cases of Membranous Angina and Stomatitis Associated with the Bacillus and Spirillum of Vincent"—Jessie W. Fisher, Middletown.

"Microbes, Medicine and Serum Therapy"—Patrick Cassidy, Norwich.

"Laryngeal Hysteria"—H. E. Smyth, Bridgeport.

"Suggestive Therapeutics"—J. M. Keniston, Middletown.

"The Belladonna Treatment of Whooping Cough"—John E. Loveland, Middletown.

"The Diagnosis of Insanity"—S. D. Gilbert, New Haven.

"The Treatment of Insanity"—W. M. Kenna, New Haven.

"A Case of Meningocele with Photographic Illustrations"—Robert Lauder, Bridgeport.

"Dry Hot Air in the Treatment of Bright's Disease"—C. E. Skinner, New Haven.

"The Neuhelm Treatment of Chronic Heart Disease"—E. K. Root, Hartford.

"Etiology, Diagnosis, Operative and Non-Operative Treatment of Gall-Stones"—D. F. Sullivan, Hartford.

"The Importance of Early Diagnosis in Diseases of the Gall-Bladder"—E. J. McKnight, Hartford.

"The Use of the X-Ray in the Treatment of Cancerous Tumors"—M. M. Johnson, Hartford.

"The Treatment of Prostatic Hypertrophy"—O. C. Smith, Hartford.

"The Importance of Blood Examinations in Medicine and Surgery"—W. R. Steiner, Hartford.

"Congenital Dislocation of the Hip"—V. P. Gibney, New York.

"Infra-Orbital Neurectomy"—A. G. Cook, Hartford.

"Eye-Balls, Bits of Iron and Steel and Giant Magnets"—F. M. Wilson, Bridgeport.

"Seborrhea"—J. D. Gold, Bridgeport.

"Is Sewer Gas Detrimental to Health"—Kate C. Mead, Middletown.

"Commercialism in Medicine"—N. Mayer, Hartford.

"Medical Machinery"—N. E. Wordin, Bridgeport.

Immediately at the close of the meeting, which occurred at 5:45, the members took locomobiles which had for some time been in waiting, and were given a ride about the city of Hartford and through its parks. This was very delightful and was thoroughly enjoyed. It was ended only by the coming on of darkness. The banquet at the Allyn House in the evening was largely attended, and was social in character. The speaking was elevated in tone and left a tender and friendly impression upon the members. Among the speakers were the retiring President, Dr. Gould A. Shelton; Dr. Francis Bacon, Frank Hopkins Clark, editor of the Hartford Courant, Rev. Mr. Potter of Hartford, Prof. Dawbarn of New York, Mr. Wells, Doctors Cook and St. John of Hartford, Prof. Charles H. Keyes, Principal of the South School, Hartford, Dr. William J. Ford, Chairman of the House Committee on Public Health and Safety, Drs. Guiteras, and Wiggin of New York, Dr. Monroe of Boston and Dr.

Carmalt of New Hartford. A most interesting feature of the occasion was the presentation to the Society by Mr. Wells of a portrait of his father, Dr. Horace Wells, the discoverer of anesthesia. The gathering dismissed at 1:15 by the singing of Auld Lang Syne after a most delightful and profitable series of sessions.

N. E. WORDIN,
Secretary.

PRESIDENT'S ADDRESS.

PRESIDENT'S ADDRESS.

THE DRAMA IN MEDICINE.

"The world is a comedy to those that think,
a tragedy to those who feel."

Horace Walpole.

Walpole knew humanity. Through the changing experiences of his life, he evidently saw its comedy and felt its tragedy.

That which is true in Walpole's thought, enters into all that goes to make up life. Especially is this quotation a truism in the world of medicine, finding its application in all the ages down to that of our own.

That medicine has its drama, and has produced many of the most conspicuous actors of the world, would seem beyond question.

We need to give only a passing glance at its history, to learn of the prominent roles which have been played, both in comedy and tragedy. Its comedy, the lighter and more mirthful factor in medicine, which has ever cheered and lightened man's pathway, claims a most prominent place in the world's best and happiest life; while its tragedy, sober and earnest in its ever thrilling acts, working and enduring to the end; struggling oftentimes with theories so slow in their development, as to bring almost despair into the wearing years of laborious effort, at last offers to the wearied and the waiting its brightest hope, its heaven-born boon. The actor may have only a faint vision of the future as he is forced to lay aside the helmet and the buckler of his warfare, yet the grand object has been achieved; the earnest, self-sacrificing life has found its tragic ending, and the world enters into its newer and greater blessings.

It is not my purpose to attempt any dramatization, in its usual sense, of the profession of medicine, but to ask you to come with me upon its dramatic stage and through its shifting and changing scenes, catch a passing view of some of the actors, and in a hasty way, to note a few of the striking characteristics of the men, who individually or associated with others, have so influenced the various periods in which they lived that their theories so well wrought out, have become the very foundation stones of the towering structure of enduring medicine.

We can but acknowledge that the drama, filled with its comedy and its tragedy, both in the past and the present, has given to medicine such pages of illustration, so vivid and so real, as to attract the world, and bring to the healing art its most zealous and brilliant supporters.

The courage and self sacrifice of the medical actors, their daring boldness and undaunted purpose, and their true sincerity in all that interests suffering humanity, have ever merited the applause of the expectant world.

The most brilliant men of to-day must graciously bow to the men of early days, in recognition of their achievements accomplished through the dim light of that stage setting in which their efforts were so conspicuously brought out.

In the Esculapian drama, which popularized itself in a distinguished manner, there was brought upon the early stage those leading theories, which dazzled and bewildered the crudely scientific minds, and led them to feel the uncanny efforts of this great medical actor.

Before the dim footlights of that age, the public was forced to see the man, the hero, and the comedian, who gave birth to medicine, and opened up the dramatization of benevolence and genuine philanthropy.

Whatever disputes early medicine may have brought

to us, we do, I think, quite agree, that its distinctive outlines were drawn by Esculapins, and that the peculiar stage setting was his. Crude as it was, it was heroically set, and with the priestly support he called around him, it only brought out in strongest contrast his towering and majestic personality.

From the philosophy of his day, he carved out some of its choicest bits, hemmed them around with his strongest defense, and gave to medicine its characteristic sphere.

In this realm of Grecian thought, he held his court. His actors subservient to his commands, gave that uniqueness of worship as asked for only by an imperious power—a would-be god.

However wrapped in myth he may have been, he is said to have well established his Grecian Hygeia, the great sanitarium in his day, most favorably, and in a most popular way.

Its location on the hills; the healing springs remote from the city; its prospect overlooking the beautiful Egean Sea, whose life-giving breezes aided the machinations of his god-giving influence, could but have called to him the care-worn and pain-tortured Greeks.

He held the idea of the true sanitarian, for up to this day, his plans and his thought hold their convincing power for good, in the location of our own sanitariums.

Temples of elaborate and beautiful structure were erected for his service, but the one around which the greatest hope centered was that at Epidaurus. It is said that however wonderful was the temple of Esculapins at Athens, it had but little comparison with the imposing effect and remedial influence of the temple at Epidaurus. A writer in the time of Anrelius says of the patients, "You might see them, as on a summer morning they swarmed like bees around the sacred well of Esculapins, to catch the vapor and quench their thirst."

It was the comedy of a faith-cure, we might say, and yet the water flowing from the very foundations of the temple—from the feet of Esculapius himself—the saviour-god, must have carried in pagan thought its healing power.

He is to us, it is true, something of a mythical doctor, and yet his hold on the Grecian and Roman times has given him to us as a distinctive medical man.

No one of the early men holds for us so striking a personality as does Esculapius, with his snake-encircled staff—the symbol of renewed life, as an ever present aid in his work of cure.

His fame knew no bounds, and into the Roman period a vast change came over the spirit of his divinity. “The slave is emancipated in his temples; the sailor in peril implores his aid, and the soldier rescued from the foe, dedicates a thank offering to the shrine.”

The wonderful cures which he wrought in his famous temple, would well vie with the work of our surgeons of to-day, stripped of its asepsis.

A man of Tourain, so goes the record, was forced to swallow leeches. He was brought to the temple for treatment. In the deep sleep of the night, Esculapius performed gastrotomy, removed the leeches, placed them in his hands, and sewed up the wound. When day came, the patient went out from the temple cured, with the leeches in his own hand. There were no long drawn out charges for convalescent days, for only a single night in the abaton seemed needed to bring the cure.

A patient having had a spear head in his jaw for six years, came to the wonder-working god. He slept in the abaton one night, and in the morning, the spear head was in his hand, having been removed unconsciously and painlessly, ages before the miraculous germ-life had entered upon the generative construction of Wells.

Strange and improbable as these reports are to us, the earnestness of the believer, and his simple confidence

and trust in the Esculapian healer, lead us to spare the harshness of our criticism with any seriousness of spirit, and accept these wonders as something more than the strangeness of old Greek life.

That Esculapius kept his symptom record, and held it of high worth, has become an established fact, since excavations in the ruined temple at Epidaurus, after a lapse of centuries, have revealed on the tablets, recorded symptoms of cases in detail, and the manner of their treatment. This strange and dramatic Grecian life, whose acting in the light he possessed had a powerful influence upon his own period, as it did upon those that followed.

The popular need of temples was felt wherever Grecian civilization had extended, and the western colonies builded them early, and sought their indispensable aid.

A feeling of deep reverence held me in strange silence, as I stood on a charming April morning within the ruins of one of the Esculapian temples at Girgenti, on the southern shore of Sicily. The gentle elevation of the temple, overlooking the most dreamy shore which the Mediterranean could command, brought me into that which seemed holy ground. Unconsciously there came before me, this healing earthly divinity of benign dignity, engaged in the beneficent act of imparting to his suffering patients, the relief for which their earnest efforts had brought them to this shrine.

It seemed to me a typical birth-place of the true benevolence of our profession. In what better way, in the dimness of the Greater Light, could the healing art of medicine be more effectively dispensed? Call it faith-cure, if we will, yet the sincere devotion to his life-giving agency, the effectiveness of his work, and the satisfying results obtained, fully established the medical profession, and gave Esculapius his envied position.

Haloed perhaps by the mythical softenings of attractive mythology he may have been, but the dramatic

effect of his artful days was most telling, and when the curtain was rung down, it closed the morning of a clearer day, and opened the way to a life of greater benevolence.

There are many conspicuous Esculapii to-day, yet the leveling influence of science has overthrown their shrines, and led them into broader and more brilliant paths.

Hippocrates was most happily born in that acceptable period of Pericles, into which some of the greatest and best lives have so conspicuously been crowded.

The famous robing of Esculapins was wrapped around him, and upon the higher stage, and among the more learned, he was to play his role as "Hippocrates the Great." It must have been no easy task to take up the lines of his predecessor, for the mythical with its alluring and convincing power was only slowly clearing away, before the brighter light of intellectual thought.

The strength of his influence upon this true medical era rightly gives to him the undisputed title of "Father in Medicine."

He gathered up with due honor and credit to his predecessors all the growing cultures that had found their resting places in the past, and so impressed himself upon the passing period, as to rightly claim the parentage beyond any question. In the quaint old history of Physic by Dr. LeClere is found this statement, "Into the shrine of Esculapius he reverently entered, and from the tables hung up in the temples, he transcribed the remedies with which he practiced physie."

He evidently must have been an indefatigable worker, and a systematic one, withal, since antiquity has reached down to us many works attributed to his careful observation and study.

However important he considered diagnosis and treatment to be, the one great evidence we have of his keen

and practical observation is noted in his statement, when he says, "The best physician is one who is able to establish a prognosis, penetrating and exposing first of all, at the bedside, the present, the past and the future of his patients, and adding what they omit in their statements, he gains their confidence, and being convinced of his superiority of knowledge, they do not hesitate to commit themselves entirely into his hands. He can treat, also, so much the better their present condition, in proportion as he shall be able from it to foresee the future."

A writer has said, "No one had a higher sense of the dignity of medicine, none showed a greater respect for his patients." One truism attributed to Hippocrates is well worth holding, "Where the love of the art is, there is the love of the man."

Since the dead in Grecian days were most religiously guarded, and dissection prohibited, Hippocrates found but little on which to build anatomy, and hence his contributions to physiology were of but little worth. Yet his observations were so clearly made and his experience so fully noted, that his writings entered into the foundation structure of the great Alexandrian school of medicine, that stamped its influence upon the world for many centuries after.

We have enough to know that Hippocrates was an all 'round man. He played no part in specialism. Into every known field of medicine he entered, and entered to succeed. Its comedy and its tragedy were equally well played by him, and no one disputed or criticised his methods.

Through his keen analysis of symptoms, and their expressions, there has come down to us through the ages the Hippocratic countenance, while the Hippocratic oath even now is only just passing from general use, as a necessary key to the entrance into the realm of practical medicine.

The seeds of the healing art, though sown in the garden of mythology, and nourished by the fructifying influence of advancing thought, began its growth with such a sturdy promise as to warrant an abundant fruitage.

The hope of enthusiastic playwrights met with no disappointment, when Galen stripped of the mystical unreal, began the conspicuous acts in his dramatic and brilliant life-work.

Galen hewed out his own pathway. The footsteps of his predecessors had left but their faintest impressions. The guiding star of success was ever before him, and though dimly seen in the distance, he heroically pressed onward, until its satisfying view was clearly obtained, and that, too, long before the curtain of his dramatic life had rolled away his future.

Among the most brilliant actors in the inceptive days of the Christian era, none stand out more prominently than does Galen.

Daring and bold in his theories, which were promulgated by his impetuous self-sufficiency, Galen easily became a favorite among the Roman royalty, while at the same time he received the most caustic criticism from the more common members of his profession.

While his methods would become subject to serious consideration in the Connecticut Medical Society of to-day, yet his efforts to advance the medicine of that period, did receive and deservedly so, the approbation of the better and more conservative thought.

Were we ever to attempt to draw the veil of excuse over charlatanry or compromise with its boastful arrogance, it would be in those early days, when through the glaring footlights of professional distinction, and the approving applause of royal audiences, this distinguished pupil of the Alexandrian school felt, that there was only one Galen, and he the Galen himself. His superior knowledge, or his superior way of displaying it, gave

him a professional pose, that made his personation most telling, and led the way far in advance of others of his contemporaries.

In the progressive medicine of the second century, his conspicuous brilliancy received a world-wide ovation, and through a deep insight into anatomy—far beyond his compeers, and lighted by his experiments in vivisection, he came so near to the discovery of the circulation of the blood, as to almost have it within his grasp. But this *ignis fatuus* suddenly receded from his unconscious touch to a point so far removed, as to find no successful discoverer until thirteen centuries had rolled along its gathered light.

Through this dramatic hero in medicine, on whom the shadows of pagan days had only slightly rested, medicine began its onward movement, struggling and advancing, more often receding, as through the opposing force of Christianity itself, it slowly led its way through the darkness of the succeeding centuries.

The mediæval days so completely wrapped up the healing art within its strong enclosure of bigoted and traditional Christianity, that the very germ of its development was blighted, and though within the monastic life medical philosophy found some encouragement, and some very good schools were established, yet its teachings were jealously watched and every ray whose flashings gave some beckoning vision of upward thought was shut away and the dim, conservative light made to continue its illumination within the same stage settings, that the mediæval centuries seemed to hold in their satisfying contentment.

The high-walled authority and tradition of the Church for many centuries held its medical actors in strongest bonds. Dissections carried the idea of sacrilege, and the work of surgeons was held by the clergy as a mutilation of the sacred image of God himself. History re-

cords that in the reign of Philip the Second of Spain, a famous Spanish doctor was actually condemned by the Inquisition to be burned, for having performed a surgical operation, and only by the favorable royal decree was he able to expiate his crime by a pilgrimage to the Holy Land, where he died in poverty and exile.

No new thing escaped only through the most daring pen, and that through distrust and severe criticism died a natural death.

This period was not a favorable one for advancement. Even the great brilliancy of the nineteenth century, would have found no radiance in that period of darkness. Edison's triumphs and Marconi's persistent thought would have been as withering plants before the frost. The passing scenes in this mediæval drama brought none of the actors that were to appear. The struggling features of the near future could find no part for them in the dissolving views. Crude, antiquated thought of hide-bound authority labored to hold its own, but the law of evolution rolled in the better day, and with leaps and bounds the light of the Renaissance burst forth in its hopeful brightness, to open up the way for the grand realization of the nineteenth century.

In the unfolding of the pent-up thought of the darkened ages, when theories struggling to be loosened from the bonds of bigotry found their freedom, there came from out these shadows, none who in boldness of thought and earnestness of purpose equalled Aureolus Paracelsus. His career from its beginning to its end was unique. His individuality stood alone. His was a history of a life, whose aim was to throw aside the error of the past, to grasp the favorable opportunities of the present, and with the newness of the reviving world, to place medicine upon a higher plane than its dreaming philosophy had ever conceived. In his extensive travels, he lived from choice with the principles of humanity and close

to the common people, which filled him with love for mankind, and with an increased enthusiasm for his great work.

A reformer so independent and aggressive as was Paracelsus, could but receive the greatest criticism, and meet with the strongest barriers which his enemies could oppose. No reformer has probably been more highly lauded, or more vilely abused than has he. One writer of his time says, "Paracelsus was adjudged by most eminent physicians to be a man of genius, indeed, of superlative genius." By others who refused to follow him, he was thought to be "less deserving than the cocks, the balloon blowers, and the charcoal burners."

One historian says, "Probably no physician has grasped his life-task with a purer enthusiasm, or devoted himself more faithfully to it, or more fully maintained the moral worthiness of his calling than did this reformer."

Muir says, "While we admire the audacity of the man, and even admit the force of his claim, we know that one who attacks the citadel of nature in this world would dash himself to pieces, before the outworks were carried, but he might make a breach through which a way for others should lie open. And Paracelsus succeeded in this. We are entering nature's stronghold, by some of the ways he helped to open."

Paracelsus could follow no school. No imitations ever tarried with him. Ancient learning and customs were to him as rightly resting in their respective ages. He asked not the aid of Galen or the early writers. He wholly discarded all their teaching, and as an object lesson burned them before his class. They were too conventional and fettered by tradition. He tried to lead the way, and failed. His high ideas of chemistry led him into the spiritual realm, and his mind was so filled with its theories, that he was carried away from the practical, into the visionary sphere of his mystical science.

Viewed in the side light of his bombastic personality; he played well the role of a charlatan, varnished his theories with his learning, which he had gathered from his associations in his rambling life, and laid them before the world.

The recognition he had gained as an original investigator, led him readily into the seat of a professorship in the renowned school at Basle. Over this conspicuous height the searchlight of criticism now threw its clearest exposure, and the boastful gems that had striven in vain to give brilliancy to his talent failed in their lustre, and the shades of reckless failure obscured his popularity. The protecting influence of his professorship furnished no covering for his arrogant self-sufficiency, and the glorious Paracelsus of rocket fame suddenly became extinguished.

Whatever may be said of Paracelsus, he was a man of talent, but the way of his leadership seemed too erratic for the following of the conservatism of his day.

History brings to us its greatest value, when through the softened light of the past, the asperities of contemporary jealousy has cast off its harshness, and left the motives and purposes of the actor in their own true garb.

So with this reformer in medicine, who, emerging from the darkened centuries, perhaps overestimating his efficiency, yet with an honesty of purpose, born of enthusiasm, began his life work single handed and alone.

By the softening charity of distant years, the impassioned beauty of Browning's poetry, shining through the light of three receding centuries, has rounded away the sharp edges of Paracelsus; given us a clearer vision of the true man, and veiled from critical view his high and independent ambitions, that carried him away from the professional companionship of his compeers. All these Browning has covered with his mantle of poetry, and given to us this unique actor merging into the dawning

centuries, so exceptionally brilliant, as to place him upon a pedestal of fame.

In his charming poetical drama, Browning has brought Paracelsus nearer to us; laid bare his true soul-life, and rescued from the unkindness of vindictive criticism, a character whose nobility of purpose can but furnish an inspiration for many a pioneer of advancing thought. We can but thank our poet for his pen picture of Paracelsus. He gives him a stage setting most favorable, surrounds him with congenial companions, who bring from him a revelation of himself in no other way obtained.

In this dramatic verse, his friend Festus, full of admiration and sympathy, yet restrained by well-balanced judgment, calls from him all his inner self, and opens it to the public view. He encourages, restrains, and kindly censures him, until we see his whole life and its motives laid bare.

In his efforts so earnest, and yet at times so fruitless in establishing his new science, Paracelsus would almost seem to despond, when Browning through Festus would arouse him, and say:

"Bid him awake
From the dream, the probation, the prelude, to find himself
set,
Clear and safe, in new light and new life—a new harmony
yet
To be run, and contended, and ended, who knows."

In his ambition to roam from one university to another, and learn the best, and bring from his experience with the people, what could not be gleaned from books, Festus implores him to

"Stay with us, Aureole! Cast those hopes away
And stay with us! An angel warns me too,
Man should be humble; you are very proud;
And God dethroned, has doleful plagues for such!"

But the entreaties of his friends fail to change his purpose, and his restless spirit replies,

"Be sure they sleep not whom God needs."

When in the loss of his professorship a reverie seizes him, and he accuses himself of prostituting his professional work, then Festus once more attempts to encourage him by telling him what he hears of him as

"One ordained

To free the flesh from fell disease, as frees

Our Luther's burning tongue, the fettered soul."

This has but little comfort for him, and he insists that "This life of his must be lived out, and a grave thoroughly earned."

The closing hours of his life bring from his faithful Festus, full of sympathy, this powerful declaration:

"I am for noble Aureole, God!

I am upon his side, come weal or woe.

His portion shall be mine; he has done well,

I would have sinned, had I been strong enough,

As he had sinned. Reward him or I waive

Reward! If thou canst find no place for him,

He shall be king elsewhere, and I will be

His slave forever.—There are two of us."

The mind of Paracelsus somewhat awakens, and he says:

"As yet, men cannot do without contempt;

'Tis for their good, and therefore fit awhile

That they reject the weak, and scorn the false

Rather than praise the strong and true in me;

But after they will know me."

And as the life is ebbing away, Browning gives to him these strong words of faith and trust:

"If I stoop

Into a dark, tremendous sea of cloud,

It is but for a time: I press God's lamp

Close to my breast; its splendor, soon or late,

Will pierce the gloom: I shall emerge some day."

And the closing breath of Paracelsus faintly utters:

"Festus, let my hand—

This hand, lie in your own, my own true friend!

Aprile! Hand in hand with you, Aprile!"

Festus breaks the silence in these emphatic words:

"And this was Paracelsus."

Where is the Browning of to-day, who will cover the foibles of our lives, bring out our own inner selves, and through his poesy waft our spirits into the Elysian fields?

The will-o-the-wisp that in the dawn of the Christian era, so quickly slipped from the touch of Galen, suddenly in the hands of William Harvey became materialized, after its weary waiting of fourteen centuries, and the discovery of the circulation of the blood joyfully heralded, and as joyfully received, became an established theory.

A discovery so important to the medical world must expectedly meet its passionate opposition, and that, too, from the profession itself. The quiet energy of Harvey, untiring in his work; patient and undisturbed under the stinging criticism of his enemies, surely and steadily brought out the added and necessary proof of the great discovery, while his adversaries having spent their harmless fusilade, were forced to see their traduced brother the hero of the day.

In this dramatic unfolding of Harvey's discovery, his grave and dignified expression, and his stately and impressive movements, as they come to us in the historical picture that we are wont to see, could but have commanded universal approbation at the opening of the seventeenth century.

Again the door of scientific research had been unlocked, which opened up to the searchers for truth such visions in anatomy and physiology as had never entered into their most realistic dreams.

It was permitted to Harvey to live to see the triumphant acceptance of his theory, and in a measure to realize its great value to the medical world.

This couplet of Shakespeare would see a most fitting wish, after the stormy contentions of his life:

"Quiet consummation have,
And renowned be thy grave."

Even in this distant day, we can but feel the force of the tragic struggle of Jenner, when through his scientific love of investigation, he brought to humanity's deliverance, the world's greatest boon. The great stage setting which his day arranged had in its audience the whole civilized world. The sharp criticism of stinging censure, the foul words of popular hate, fashioned and led the opinions of the masses, while from out this same theatre, the applause of the advanced and scientific few was scarcely heard. And yet, standing grand in his modesty, and mighty in his unswerving purpose, he maintained the tragedy of right, and through his silent and telling proofs, evolved the truth that convinced the incredulous; hushed to shame the tradncers of his fair name, and brought from under the clouds of unbelief, the shining glory of Jenner's name that for more than a century has never been dimmed.

In historical record, May nineteenth, 1796, gave the opportunity to put into practical experiment his well thought out theory. Two months later, the actual period arrived, when the simple cow-pox lymph, harmlessly safe, stayed with its opposing antagonism the fearless onset of the great scourge, small-pox.

His theory now a fact so well established, asserted its revolutionizing claim, and entered upon its mission, probably the grandest mission the world has seen, or will ever be called to witness.

When the dark pages of the history of this scourge unfolded its statistics, and the world appalled at its unchecked progress, beheld its death-dealing agency, what a heroic figure in the drama of his day must Edward Jenner have become among the closing scenes of the eighteenth century.

There was no wireless telegraphy of Marconi, whose electric wave might bear the joyous news; the witching machinations of Morse did not even enter into its heraldry, but the silent, throbbing hearts of grateful humanity, carried on the glad tidings of emancipated joy, from empire to empire, until the name of Jenner had encircled the world, returning it to him in all its joyfulness.

No actor in life's drama has ever been called before the curtain in more joyful acclaim than has Jenner. The grandeur of his life, the true chivalry of his nature comes to us in no clearer type or illustration, than from his own simple expression, when he says, "While the vaccine discovery was progressing, the joy I felt at the prospect before me of being the instrument destined to take away from the world, one of its greatest calamities, blended with the fond hope of enjoying domestic peace and happiness, was often so excessive, that in pursuing my favorite studies among the meadows, I have sometimes found myself in a kind of reverie. It is pleasant for me to recollect that these reflections always ended in devout acknowledgment to that Being from whom this and all other mereies flow."

A celebrated surgeon of his day, Mr. Clive, urged him to come to London, under a promise of ten thousand pounds a year. Here again the grandeur of his modesty showed high his Christian manhood, when on declining the request of his friend, he replied, "Admitting as a certainty that I obtain both fortune and fame, what stock should I add to my little fund of happiness? And as for fame, what is it? A gilded but, forever pierced by the arrows of malignancy."

But the brightness of his day of rejoicing was not without its clouding, for the derision of his contemporaries, tinged with venomous jealousy, hastened to overthrow by their statements of unvarnished falsity, this well-earned discovery. The clergy did not withhold its

unkind influence, even though the evidence on the side of Jenner was as clear as noon-day. The well-known conservatism of the church furnished but little encouragement for its adoption. This great agent for the physical salvation of the world needed no such assistance. It carried conviction everywhere. It did its own apostolic work, and millions of lives annually were saved.

And yet some bright satisfaction must have come to Jenner, when in 1803 Dr. De Carro's enthusiasm brought a letter to him from Geneva, in which it said, "The greatest medical birth of time, was brought from Britain, and laid in the cradle of medicine at Greece—the land in which, more than two thousand years before, the first impulse had been given to that medical thought, which now had returned to its place of birth." And in this letter, it was suggested that "a statue to Jenner should be erected on the Acropolis at Athens, as an historical pendant to the statue of Hippocrates at Oxford."

While standing on this eminence of fame, he still was forced to hold battle with his professional foes, whose robbery of his prestige filled them with greed.

It was permitted to Jenner to see the fruitage of his labor; his battle won, and a well-earned life-work finished. With the brightness of his dramatic life undimmed, the great benefactor of his race, amid the peans of victory, gloriously passed into the Beyond.

How clearly there comes before us in dramatic array, the vision of Wells, Virchow, Lister, Pasteur, Behring, Koch, and others, with their heroic attendants—star actors in the world's great drama of benevolence and philanthropy. Others in the din of battle do and die the patriot's death; but these, who wrought in the confines of their laboratory walls, gave birth to theories well tested and proven, that have shaken the world; fired with enthusiasm dormant benevolence; builded

hospitals for special work, and gave to mankind its freedom from pain, disease and death. Call this work scientific research if we will. It is that, and more. It is heaven-born inspiration. The suppressed heart yearnings of souls now freed from the chains of disease, present a tragic spectacle, so telling and so deep, that the artist's brush with all its magic touch can never paint the scene.

Through these efforts, chemistry was forced to unlock her greatest treasure. The priceless boon was given to humanity, and the Great Defender of our Faith, Dr. Holmes, christened it,—Anesthesia. Surgery was now released from the bonds which centuries had held, and with renewed courage and holy zeal, it entered upon its fullest mission. A new light had burst upon the world, and a new life, born in our own commonwealth, and in our own Capital City, began, under the generating thought and parental care of Horace Wells.

The terrors of surgery now faded away, and the painless, magic spell of anesthesia held its charming power. The heroic courage of the surgeon gave way to greater skill, and he rose to that higher plane of usefulness, upon which Wells had invited him to enter.

This great agency of surgery, of such supreme beneficence to suffering humanity, could not be held. This new discovery of the New World's creation was heralded throughout Christendom, with the speed of steam, and its usefulness everywhere began. Morton at once entered upon its more practical use. Sir James Y. Simpson soon gave to his own countrymen his chloroform, and this new drama in medicine, filled with its innumerable actors, enlarged the bounds of surgery, new fields were invaded, until at the present day, no part of God's image dare hold its hidden secrets.

How happily is unfolded in the great drama of science, the several acts that so unerringly point the way, for the

advent of the newer act, which is to play its role in the opening up of the more extended and wider sphere of progressive medicine.

Rudolph Virchow, with all the beauty and attractiveness of his theory of cell-life, brought it in his own good time before his world-wide audience. Yet the shifting scenes were needed, and another act was to follow, in which Lord Lister most ably supported, before the curtain rose that was to unfold Virchow's fame in its greater fullness. His work was done, and thoroughly done, furnishing an enduring base for the long and brilliant successes that have followed, to such an extent, that we to-day cannot attempt to bring any just estimate of the beneficent magnitude of his work. He seemed to have opened, as it were, "the window of heaven" that brought to him a view of newer fields of medicine, and a larger domain of research, than other eyes could scan. Through this new light, scores of others peered into the future, and with their own vision, and in their own light beheld the unfolding of their theories.

Science in the new light and in the new day knows no limit. There is an unbounded field for research, and the workers have not been wanting. Lister, Pasteur, Koch, Behring, and scores of others in our own land and elsewhere, have removed all doubt, proven all things, and through their pioneer thought and research, have brought untold blessings to men, and saved millions of lives.

It would seem that there remains nothing untold in the medicine of to-day; that the whole field has been opened, every skepticism removed, and nothing is needed but to build on the well-laid foundation, and erect the fabric of medicine, unerring, specific and enduring. But the searching inquiry of fruitful minds will go on, and the changing scenes of the coming drama will be full of its attractive interest still.

There yet remains for science to combat, with all its

exterminating force, the greatest scourge of the world. Tuberculosis in its stealthy and deceptive invasion knows no empire, save that of the world itself. It shows no discrimination. The rich and the poor, the educated and the ignorant, alike are its victims. The germ is not destroyed by the frost of the Arctic, or induced to loosen its hold by the soothing influence of the tropics.

Health resorts of every description invite the sufferer, only to stay for a time its progressive course. We strive with our opposing barriers from year to year, often with greatest confidence, but they have not yet checked its onward march. It stalks boldly through every city and hamlet, gathering to itself the best and the brightest, until conservative statistics are forced to admit that in this world of greatest acquirements, tuberculosis destroys the lives of two persons in each minute of passing time. This great destroyer of life furnishes the world with its greatest tragedy, and calls from scientific medicine, its supreme energy and its most penetrating thought.

Great work has been done, it is true. The masses have watched with keenest interest the building of sanitariums within the reach of the people, and read with hopeful trust the newest discovery in the treatment of this great white plague. The foremost actors in this drama have worked with ceaseless energy, and with some degree of success. Koch and others have carved high their names on the roll of fame, and opened the way for the more complete accomplishment of the world's greatest hope. Surely the morning of the twentieth century brings some promise of a brighter day.

The treasure of the world is being emptied into the lap of scientific research. Better and more effective work is being done everywhere. The looked-for goal seems nearer, when specific treatment shall merit confidence, and its results furnish abundant proof of its surety.

Like magic, the civilized world is rearing hospitals and institutions for the study of tuberculosis and other contagious diseases, and the great humanitarians of the day see in this the highest of Christian benevolence—the great work of the Master.

The most brilliant actors in the drama of medicine are to-day working out the great problems, under the inspiration of the hour, and the benedictions of the great minds that have preceded them.

Can we not hope, do we not believe that long before the twentieth century will have closed, the curtain will be rung down on the final act in the tragedy of the great white plague; and when again it shall be rung up, it will disclose a scene of triumphant medicine, amid the grateful and joyous acclaim of a world freed from its bondage.

DISSERTATION.

DISEASE—WHAT IS IT?

DISEASE—WHAT IS IT?

ELIAS PRATT, M.D.,

TORRINGTON.

It is my purpose to-day to occupy your attention but a short time. I wish to present to you one thought, stated as briefly as possible, which you may carry with you, and over which at your leisure moments you may ponder. It is the answer to the question: What is disease? It is a question which has occupied the thought and attention of the physician ever since medicine had a history. The importance of the answer is apparent at once when we consider that such answer has determined and still determines the methods used to combat that condition which we call disease.

It would reach beyond the scope of this paper to go to any length into the theories regarding the nature of disease which have been evolved in the past. To touch upon them for a moment will answer the purpose of the present inquiry.

During the metaphysical period of medicine which was previous to the middle of the last century, diseases were regarded by many as entities or things in themselves. For instance Paracelsus believed that diseases were spiritual in their nature, and he gave remedies antagonistic not to the disease in a physical sense, but to the disease in a spiritual sense.

Another theory was the Humoral theory which probably dates to Hippocrates, or before, and which even at the present time has not ceased to influence medical thought and practice. Such theories as the above which sought for the nature of disease in supernatural and mystical causes were almost universally accepted down

to the middle of the nineteenth century, and to-day we find a large number of the medical profession basing their practice upon such theories. Even the forms of expression used in reference to diseases at the present time are largely based upon the old fauciful conception of them as substantive things entering into and possessing for the time being the person of the patient.

Let us look at the definition of disease as given in recent years.

Dunghlison in 1880 gives disease—an opposite state to that of health. A few years later Quain, disease—a deviation from the standard of health in any of the functions or component materials of the body. Still later Gould, disease—a condition of the body marked by inharmonious action of one or more of the various organs owing to abnormal condition or structural change.

The above simple definitions are in marked contrast to the theories and ideas of a few years before. What brought about this change?

About the middle of the nineteenth century it was discovered that the human body was made up of cells. The body begins as a single cell which is formed by the union of the male and female element. This cell divides and sub-divides, and at first each cell is to all appearance like every other cell. Later owing to hereditary influence a differentiation between the cells takes place, and certain cells take on functions peculiar to themselves until in the fully grown and developed body there are marked differences between the cells, but in spite of these differences they are still cells having function and purpose. When the cells of the body perform the function, do the work, and produce the results intended for them, we call the process normal or physiological.

When the function of the cells is interfered with there is a change in the normal physiological process. This change produces signs or symptoms, or both combined. When the body shows such a condition we say

that disease exists. The dividing line between a normal physiological process and the abnormal process called disease is not sharply defined. We have abnormal conditions more or less marked for which we have no specific name. When there exists a certain fairly well defined group of signs and symptoms or a certain part of the body is involved in an abnormal process, we give to such a condition a name, and say that there is present a certain disease.

Let us look for a moment into the nature of the things which may interfere with the normal functions of the cells of the body. If a foreign substance is introduced into the body which is as we say to-day aseptic, it creates little disturbance unless it enters into such a place the mere mechanical injury of which produces serious results. But far different is the effect if the foreign body has life, is in fact a living cell having functions. Then there is set up a warfare between the cells of the body and the invader. It is this contest between the cells of the body and the invading cells which produces the changes in tissue and the changes in function to which we give the name disease. And this condition is a perfectly natural result of the clash between these living organisms. Thus we see that the disease so called is not the entity but the invading living organism is the entity. It simplifies the situation to a marked extent to remember this fact. Instead therefore of thinking of disease as an impalpable something which takes possession of our patients and which must be combated or treated, we realize that there is a combat going on between the cells of the body and invading cells, we are then in a better position to undertake measures of relief, which measures will be directed in such a way as to assist the cells of the body in overcoming the invader or they may be directed against the invader itself, or they may be both combined. To illustrate the positive value of a correct knowledge of the nature of disease let us look at

Puerperal Fever. Many of you can remember how this most fatal of diseases to the women in childbed, hovered like an evil spirit at the bedside and struck terror to the heart of the obstetrician. The chaos in the minds of the profession is well shown by reciting some of the causes of Puerperal Fever. It was attributed to "different labor; uterine inflammation, an accumulation of noxious humors, miasmata, admission of cold air to the body of the patient and into the uterus, hurried circulation, suppression of the milk, diarrhea, putrid contagion from alteration in the fluids during pregnancy, hasty separation of the placenta, too tight application of the binder, sedentary employment, stimulating or spare diet, fashionable dissipation, retained portions of the placenta, floodings from non-contraction, violence, inflammation of the intestines and omentum from pressure of the gravid uterus, atmospheric derangement, erysipelas, metritis, phlebitis, and to specific contagion."

We now know that Puerperal Fever is due to germ infection and that surgical cleanliness entirely prevents the disease.

The death-rate in maternity hospitals from Puerperal Fever has been reduced from about ten per cent. to one quarter of one per cent since the discovery of the cause of the disease.

With such evidence before us let us entirely free our minds of any lingering effects of ideas which have prevailed in the past regarding the nature of disease, bearing in mind that we have before us a mortal combat between living organisms, one or the other of which must conquer, remembering that it is our duty to assist our patients in winning the battle and in overcoming its effects.

REPORT
OF THE
COMMITTEE ON MATTERS
OF
PROFESSIONAL INTEREST
IN THE STATE.

REPORT OF THE COMMITTEE

ON MATTERS OF PROFESSIONAL INTEREST IN THE STATE.

Your committee have the honor to submit the following report of their investigations, with such comments as the subject of the occasion seem to require. A study of the various reports submitted by committees on Matters of Professional Interest for the past thirty years shows that while this custom can be called one fairly established by usage, members of the Society as a whole have hardly taken that interest in this form of collective investigation that the framers of the By-laws by which this committee was created probably expected.

In the report of the Connecticut Medical Society for 1871, I find the By-laws creating this committee, which after stating that three members shall be appointed by the President, the first appointee to be the chairman of the committee, it is also stated, "And to more effectually perfect this report, it shall be the duty of each county and every society represented in the State Society annually to appoint one of its members as a reporter, who shall furnish to the Committee on Matters of Professional Interest a report on all matters coming under their jurisdiction." To this date your committee has received no report from any of the county reporters, possibly because they were not aware of the existence of this By-law, and it is only fair to add that your committee was itself in ignorance of this provision until after the inquiries were mailed to members.

Out of a membership of six hundred and ninety-six in our State Society, one hundred and fifteen members have returned replies to your committee, hence your com-

mittee hardly feel justified in assuming that the conclusions drawn from the collective investigation can fairly be said to represent the consensus of the opinion of the members of the Society. The opinions expressed, however, in answer to the questions submitted are not without interest, and while it is to be regretted that more members did not take part in this discussion, sufficient did so to render their collective opinions of considerable value and interest. Your committee chose for its subject: "Pulmonary Tuberculosis," believing that a disease so widespread in the community would almost of necessity come under the personal observation of practically every practitioner in the Society, and also for the reason that public interest is aroused regarding this disease more than at any previous time in the history of the Society.

The diagnosis, the treatment, and more especially the prevention of pulmonary tuberculosis, are now matters of daily discussion in the secular press. The State has also shown interest in the question by voting to establish a second sanitarium for the treatment of pulmonary tuberculosis to be located in New Haven County. When this institution is completed Connecticut will be provided with two quasi-public institutions for the treatment and prevention of the spread of pulmonary tuberculosis, not to mention numerous private sanatoria already in existence. The questions framed by your committee were designed to ascertain, if possible, the personal opinion of each member to whom the circular was sent, and an opinion based not upon profound technical and exhaustive study of the pathology of pulmonary tuberculosis or the microscopic pathology and life history of the tubercular bacillus, but so far as we could ascertain is, what personal experience of each member led him to believe regarding the method by which pulmonary tuberculosis was acquired, the danger to be apprehended of its spread by communication from one member of a family to another, and the best methods to control this

spread by both public and private means. No attempt was made, nor was it desired that expert opinions regarding the life history of the tubercular bacillus should be expressed, but the experience of our members, frequently extending over long terms of years, cannot but be of interest in questions of this character.

One hundred and six of our members believe pulmonary tuberculosis to be both contagious and infectious; one believing that heredity and contagion are the prime factors in the development of the disease, and one believing that nutritional defects and cell anemia are the exciting causes. Sixty can recall and quote instances where pulmonary tuberculosis was directly transmitted from one individual to another. In case of husband and wife, ten cases are reported in which one or the other contracted the disease; nine cases where it was transmitted from a brother to a sister, or vice versa; two from a parent to a child, and seven instances are quoted in which the disease developed where the individual was living in the same house in which there had been previous cases; the number of such previous cases are not given.

Regarding the degree of exposure, much difference of opinion is expressed, the majority believing that prolonged exposure, that is to say, of several weeks or months of intimate and personal contact is necessary to develop the disease. Ninety members mentioned instances where one or more members of the same household developed the disease; numerous instances are recalled where the disease prevailed for a long series of years in the same house. This would apparently indicate the belief of the reporter in the infection of the house in question. The approximate length of time of exposure necessary and the time after exposure, when a person can be regarded as free from liability to develop the disease, likewise elicits many varying opinions. Thirty-five members expressed the opinion that any time from three

months to three years a person might develop the disease after sufficient exposure to render him liable to infection.

Concerning the question of a natural immunity from pulmonary tuberculosis, sixty members answered in the negative, forty-six regard an out-of-door life, with good hygiene, as practically protective; eight regard the rheumatic or gouty diathesis as conferring immunity. Several instances are quoted in substantiation of this opinion.

Regarding the descendants of individuals who have had pulmonary tuberculosis, two cases are reported who developed the rheumatic diathesis; seventeen cases where there was marked nervous disorder, or at least a predisposition to nervous disorder noticed in descendants.

Alcoholism of either or both parents is regarded as favoring the development of tuberculosis by sixty-one members; fifty-two members think it has no such effect; one member considers descendants of alcoholics as likely to be immune to the infection.

Eighty-four members believe pulmonary tuberculosis is directly transmitted from parent to child, twenty-nine members denying this possibility.

Our members report that collectively they have four hundred and sixty-one cases of pulmonary tuberculosis under observation in the State of Connecticut, and of these four hundred and sixty-one, one hundred and seventy-three are considered proper subjects for modern sanitarium treatment.

Ninety-four of our members believe that the State should support public sanatoria for the treatment of pulmonary tuberculosis; twelve think the State should take no action, and four have no opinion.

Eighty-four members believe that the disease should be reported to the local health officials as a communicable disease, and thirty members question the propriety of such procedure.

All of our members who answered the question at all, believe that the contagion will remain indefinitely in an infected building unless thoroughly disinfected.

It will be seen by a review of these answers that our Society as a whole, so far as our replies can be said to represent the opinion of the Society, are quite in abreast of modern ideas regarding this disease. They believe it to be a communicable disorder due to an infection; they quote instances where the infection is directly transmitted from one member of a family to another living in close contact; they recognize a natural and possibly an acquired immunity; they believe that inherited vice of constitution predisposes to the development of the disease; they believe that the State should recognize, and, so far as possible, control it by the establishment of sanatoria, the recognition of the disease by health officials and the establishment of suitable means of disinfecting infected houses.

Your committee feel that while we cannot but regret that so few responses to the questions submitted were received from the members, that the result of this collective investigation may be not without interest to the Society as a whole.

Respectfully submitted,

E. K. ROOT,
P. W. STREET,
F. K. HALLOCK.

MEDICAL PAPERS.

REPORT ON PROGRESS OF MEDICINE.

I.

WALTER R. STEINER, M.D.,

HARTFORD.

No report on the progress of medicine during the past year should be made without a preliminary reference to one of the great names in our art who died September fifth, 1902. For Rudolph Virchow has done more than any one in our profession to put the science of medicine on a rational basis by introducing exact methods of medical research, and establishing the principles of cellular pathology. He has been the stimulus to many to further the advance of medicine and he himself was the author of one hundred and twenty-five large volumes and one thousand pamphlets. Lord Lister has justly called him "Our Beloved Master, The Father of Patology."

The memory of such a man will be ever blessed—a man honored alike for his researches in pathology and anthropology, as well as for his devotion to the public weal in many official capacities.

It has been well said that the past year has been "characterized by further investigation along many lines of medical science rather than by the inauguration of new theories." For instance previous labors on the transmission of malaria and yellow fever have been continued and the parasitic theory of their transmission, heretofore advanced, has been substantiated by further researches. As a result of this work yellow fever has been pretty effectively stamped out in Havana and other parts of Cuba, and malaria has become a disease much

less to be dreaded if proper measures are taken to destroy the offending anopheles and their ova. Koch's theory, that the danger of transmission of tuberculosis from animal to man was practically nil, has been during the past year frequently found to be erroneous. Salmon well states that "tubercle bacilli from bovine sources may infect man and produce a progressive and fatal disease. Ingestion tuberculosis may have its starting point in the glands of the neck or thorax, or even in the lungs, and the number of cases of human tuberculosis showing a primary intestinal lesion is no indication of the number of cases which occur from ingestion. We must depend largely on the clinical evidence for a determination of the relative frequency with which man is infected by tubercular food."¹

No further light has been obtained on the parasitic origin of cancer, but many have turned their attention to this subject and the number of cancer commissions organized is gradually growing larger. Ehrlich's side chain theory of immunity is receiving further and further substantiation and, although the subject grows in its complexity, yet the theory has stood fire so far and may be at present considered a more adequate and convincing theory than any other formerly enunciated.

As we advance in our knowledge of the different diseases, the more likely are we to find their cause and to know the complications and sequelae that can occur during and after their attacks. Let me consequently speak somewhat in detail of some of the progress made during the past year along these and other lines.

SUMMER DIARRHEAS OF INFANTS.

One epoch-making discovery has been made whose significance may have an important bearing on the treatment of the disease in question. I refer to the finding of the Shiga bacillus in summer diarrheas in infants. This was due to the brilliant work of Duval and Bassett²

who, working under the direction as well as inspiration of Dr. Welch of Baltimore, and Dr. Flexner of Philadelphia, were able to isolate this organism from the stools in forty-two cases of summer diarrheas of infants. It was also obtained from scrapings of the intestinal mucosa at autopsy, and in one case from the mesenteric glands and liver. In the stools of acute cases the bacillus was present often in large numbers but in cases of mild severity and in those of long duration they were found with difficulty, "on account of their presence in relatively small numbers and the antagonism of the normal intestinal bacteria." The identity of this bacillus with that found in cases of acute dysentery in adults by Shiga in Japan, Flexner and Strong in the Philippines, Kruse in Germany and Vedder and Duval in this country has been most thoroughly established. From the animal experiments of Gay⁴ and Shiga's success⁵ in treating adult bacillary dysentery with serum, we may look forward with great confidence to the early discovery of an effective serum against this disease.

SMALL-POX.

The past year has been very productive in researches upon the etiology of small-pox. Dr. Councilman's investigations³ in this line are the most important for he has found, in connection with this disease, an organism belonging to the group of protozoa. It has a definite life cycle "without and within the nuclei of the deeper layers of epithelial cells of the skin" and in these two forms is seen in small-pox, while the extra-nuclear form alone causes vaccinia. With the formation of a vesicle the life history of this organism is completed.

TYPHOID FEVER.

The work done on the occurrence of typhoid bacilli in the blood of typhoid fever patients has been most instructive and has a lesson for those physicians who do not yet realize that "typhoid fever is clinically a general sep-

ticemia, of which the intestinal lesions form the more marked local manifestations " and that consequently so-called intestinal antisepsis can neither abort nor influence this disease. Schöttmüller⁶ from Lehnartz's clinic at Hamburg was able to cultivate the typhoid bacilli from the blood eighty-four times out of one hundred and one patients. In thirty-nine out of fifty of them positive results were obtained on the day of the patient's entry into the hospital. He believes the number of bacilli in the blood bears a more or less direct relation to the clinical symptoms and that the estimation of the colonies in plate cultures has a certain prognostic value, the bacilli being more numerous in the severer cases. He obtained positive results much earlier than by the Widal test and declares that a negative bacteriological blood-examination in very ill patients with high fever, where the clinical symptoms do not allow of a positive diagnosis, practically excludes the diagnosis of typhoid. The usual portal of infection is probably the gastro-intestinal tract. Busquet⁷ was even more fortunate in isolating the typhoid bacilli for he found them in every case he examined—forty-three in all—and generally at the first examination, although in one case they were only observed at the fourth. In fourteen of the cases there was a mixed infection. Commont,⁸ another French observer, has found them as early as the fifth day and believes with Busquet that they can be recovered from the blood in all cases, at some time during the disease. Cole⁹ and Hewlitt¹⁰ in this country have previously obtained this bacillus from the blood—the former in eleven out of fifteen cases and the latter in twenty out of twenty-four. The previous failure to cultivate these organisms was probably due to the small amount of blood withdrawn. The bacteria were consequently killed by the blood's bactericidal action. The present method is to dilute largely the blood so as to destroy its above-mentioned property.

Among the complications and sequelae of typhoid fever those connected with the arterial system are of great interest. They were first recognized early in the last century and since then similar cases have appeared in the literature from time to time. Thayer¹¹ has recently written an interesting and instructive article on "Arteritis and Arterial Thrombosis in Typhoid Fever" and gives somewhat at length the histories of five cases. In some of the cases the apparent thrombosis occurred in very young patients who presented no signs of arterial sclerosis as a causal factor. Subsequently there was a complete recovery of the affected part. In these instances it is suggested that an arteritis only existed, which caused the pulse to be so much obliterated that it was merely not felt. The infection is localized in the arterial walls and may be due to the typhoid or other secondary organisms. The arteritis thus induced is the precursor of the thrombosis which frequently then follows. The thrombosis, however, as Flexner has shown, may be agglutinative and itself set up the arteritis.

PARATYPHOID FEVER.

In spite of the great value of the Widal reaction in typhoid fever, yet occasionally it is found wanting for some cases do not respond to the test. Hastings¹² says about ninety-five per cent. of the cases of typhoid fever show the Widal reaction on dilutions 1:30 and 1:50 and higher. Some of the cases, hitherto classed as typhoid but giving no Widal, were evidently due to the paratyphoid organisms which cause a similar disease. In fact the isolation of this organism and the response of the patient's blood to a culture of the same are the only differential points between the two. The paratyphoid organisms form an intermediate group between the typhoid and colon bacilli. Cushing, Durham and Buxton have especially investigated their cultural properties. Gilbert gave them the name paracolon, but the name paratyphoid, first

introduced by Achard and Bensaude in 1896, seems to be the more preferable. Two species of these bacilli exist and have been called by Buxton, the alpha and beta paratyphoids.

Valuable summaries of the reported cases have been made by Johnston ¹³, Brill ¹⁴ and Pratt ¹⁵. The disease is of wide geographical distribution and may occur in epidemics, young adults are chiefly affected and the fall of the year reaps the greatest harvest of the cases. The infection is a general one in which the local lesions may be wanting. The symptoms resemble those of typhoid fever. Johnston, from his study of the existing cases, is of the opinion that diarrhea and a termination of the fever by crises are of more frequent occurrence than in typhoid. The complication in their number and frequency are quite a marked feature of the disease, as Pratt has pointed out. He has collected a list of forty-one of them, the majority occurring where the beta paratyphoid was the causal germ.

The paratyphoids are recovered early in the disease by blood-cultures. If the blood is later withdrawn it is generally sterile. These bacilli have also been found in rose spots, urine, feces and once in the sputum. The death-rate is remarkably low, being only 3.6 per cent. out of eighty-four cases collected by Pratt in all of whom the beta paratyphoid was obtained.

PNEUMONIA.

In pneumonia Cole ¹⁶ by his labors, which agree with the work of previous investigators, has only found the pneumococcus in the blood of the severer cases. He recovered this organism in nine out of thirty patients he examined and every one of them had a fatal outcome. Altogether thirteen out of the thirty cases died. He concludes, consequently, that blood-culture-taking in this disease is mainly of a prognostic value, the cases with pneumococcus septicemia being more likely to ter-

minate fatally. Prochaska,¹⁷ however, isolated the pneumococcus in every one of the ninety cases he examined and claims the number of pneumococci in the blood bears no relationship to the severity of the attack. Doubt will have to be placed on his work until it is substantiated by farther researches.

Peripheral Venus Thrombosis is an interesting feature in some cases of pneumonia. It mostly occurs as a sequela at variable periods in the convalescence, but occasionally it may be met with in the course of the disease. I have elsewhere collected¹⁸ the previously recorded cases which, with the three I reported, amounted to forty-one in number. Since then I have added seven cases to this list, and have heard of a number of unrecorded instances so that it is not as rare as the cases published would lead us to suppose. The lower extremities were involved in forty-five of these cases, but in three the upper extremities were concerned. "Of the forty-one cases death occurred in nine and twenty-five recovered, no definite information is given of seven. Eight of those who died had autopsies, and in five death was due to pulmonary embolism."

Pneumococcic Arteritis also is occasionally met with in pneumonia. It has especially interested two investigators during the past year. They have given us some cases they have personally encountered and have gathered those already published. Herrick's list¹⁹ is fifty-two in number while Cole's cases²⁰ amount to forty-one. Each of them has found cases which escaped the attention of the other. The total number of cases at present is sixty-eight, as Slaughter²¹ has most recently added some additional ones. In all the diagnosis was established by bacteriological examination, the exudate being generally thick, creamy pus. According to Herrick "the lesions are usually non-articular (61.5 per cent.), the larger joints being oftenest involved; the knee joints most frequently

of all." For a diagnosis exploratory aspiration and bacteriological examination of the fluid withdrawn should be employed. The localization of the disease is favored by previous damage to a joint as by trauma, rheumatism or gout. The prognosis is grave, sixty-five per cent. of Herrick's and forty-six per cent. of Cole's cases ending fatally. If the patient gets well recovery is slow and ankylosis of the involved joints usually results. For treatment, if the exudate be purulent, immediate incision and drainage is employed, but if serous, aspiration, rest and compression are recommended.

INTESTINAL PARASITES

have demanded our attention during the past year more than ever before. Our new possessions have shown us that some of the diseases they produce may be a menace to the community. Stiles and Thayer have pointed out the presence of diseases in this country whose existence had been formerly denied or thought at least extremely infrequent.

UNCINARIA DUODENALE AND AMERICANA.

The work of Claytor and Yates in collecting the existing cases of *Uncinaria Duodenale* in this country may be familiar to many of you. They caused some interest to be taken in this disease, which is of great antiquity. It is due to a small nematode parasite—the male measuring from six to ten millimeters long, and the female from 10 to 18 millimeters—which infects the intestinal tract and produces anemia from sucking the blood and making a lesion in the intestinal wall from which the blood oozes after the parasite has let go its hold. It probably also does harm by the formation of a toxic substance, which causes a destruction of the red blood corpuscles. The eggs, which are of an elongate, oval form, with a thin shell, and with protoplasm either unsegmented or in the early stages of segmentation, can only develop after leaving the intestinal tract, as air is required for the production of the larvae. Infection then occurs

by the transference of the larvae to the mouth on the individual's infected hand, or by their being swallowed in drinking water or in contaminated food. Infection also may be from dirt or clay eating. Loos has proved that the parasites can also enter the body by penetrating through the skin, commonly gaining admission through the hair follicles. It takes about eight days for embryo to become full grown. Five weeks after the infection the parasites are ten to twenty times the length of the full grown embryo or larva. Their presence is made known by their eggs being seen on the stools. Their shortest cycle of development is from five to eight weeks.

In May, 1902, Stiles ²²reported the discovery of a new species—the *Uncinaria Americana*. It differs from that above referred to in that the eggs are considerably larger and the two ventral recurved hook-like teeth of the adult are replaced by a pair of semi-lunar plates. There are also other differences presented by both the male and female worm. This species he found causes an affection which stands fourth among the prevalent diseases of the South and produces one-half of their cases of anemia. It is generally encountered among the poorer classes of the Southern whites, who live in the sand and pine wood districts, especially in the moist localities. It is more common in the summer and fall, for when the frost comes the eggs and embryos are killed and a reinfection is thus prevented. In three days Stiles found forty cases and in one family eleven were affected.

Caps ²³ of Chicago, has recently collected all the reported cases in the United States and makes their number fifty-one—five being of the new species. "In nearly every instance they had been imported from the tropics, from Europe, or from the Southern States." His list, of course, does not include Stiles' cases.

The general nutrition of the patient and the number of parasites present cause the symptoms to vary. In well-developed cases the symptoms are those of pernicious

anemia. "The principal phenomena are dyspeptic symptoms with colicky pains in the early stages, followed by progressive anemia, speedily becoming profound, with little or no emaciation and with terminal edema." For the treatment Stiles recommends thymol, in powder form, gr. XXX at 8 o'clock a. m., and at 10 a. m., to be followed at noon by salts. Before the thymol is administered a laxative should be employed. The treatment may have to be rather frequently repeated.

STRONGYLOIDES INTESTINALIS.

Somewhat more than a year ago Dr. Thayer²⁴ called attention to the *Strongyloides Intestinalis* which had been found in three cases at the Johns Hopkins Hospital. Two of the cases had never been outside of Maryland and Virginia, but the first case had lived all his life in Austria, until he emigrated to this country six years prior to his admission to the Hospital. The parasites in this case were found by Dr. Strong of Manila, while a medical student. He, consequently, deserves the credit of being the first to find them in this country. The case was complicated by the additional presence of the *ameba coli* and the *trichomonas intestinalis*.

The *Strongyloides Intestinalis* was first discovered by Normand, a French naval surgeon, in the feces of those who had contracted severe diarrhea in Cochin China. The parasite is usually met with in the stools as larvae, measuring about 0.33-0.22 millimeters in size. If the stools are kept in uncovered vessels, at a sufficiently warm temperature, it takes about five days for them to reach their full development. They probably produce their harmful effect by mechanical causes, but Calmette thinks they form a substance which acts as a chemical irritant. The eggs are elliptical in shape with a thin, clear, yellowish shell and granular contents. They are present in the stools only with the greatest rarity. In Thayer's cases the development of the sexually differentiated free living generations was unusual for it was

only found in one case. Culture experiments showed that the direct transformation of the rehabditiform embryos into filariform larvae was their customary mode of growth. The symptoms are those of a chronic diarrhea which begins with a mild dyspeptic attack. There may be temporary exacerbations and recovery may ensue or the patients may "pass on to a condition of extreme emaciation with prostration." The anemia is not, as a rule, very severe. The treatment is unsatisfactory.

CLINICAL METHODS.

The clinical methods best adapted for ready use and most time-saving in their employment are those most likely to be adopted by the practitioner of internal medicine. Though the Ehrlich Triple Stain for the blood is probably in the end the most satisfactory, yet the stain of Jenner, introduced about five years ago, has many admirers, and rightly, as it is so readily used. Leishman's modification of this stain ²⁵ should prove even more popular as it differentiates more clearly the granules of the leucocytes and stains admirably the hyaline forms of the malarial parasites. Wright's modification of this stain, ²⁶introduced during the past year, is more easily prepared and answers every purpose. By it there should be no difficulty in detecting the young forms of malaria and vacuoles should never be confounded with them.

In studying the blood-pressure the pulse heretofore has been generally the only method clinically employed, but the placing of convenient blood-pressure apparatuses on the market offers us now valuable assistance, not only in differentiating between different diseases, but also in informing us as to the result of our treatment of different cases. To measure this pressure many instruments and devices have been employed, but Riva Rocci's instrument, with Cushing's modifications, presents the greatest simplicity, is most readily used and, after slight prac-

tice, is fairly accurate in its results. A few examples will show the great field of usefulness of these estimations. ²⁷ In cases of intracranial hemorrhage the existence of a high and rising blood-pressure in a patient is positive evidence of increasing hemorrhage and is, in itself, a sufficient indication for surgical intervention. Again, in comatose patients, with reflexes absent and without localizing signs, uremia and cerebral hemorrhage may be distinguished, for in the former the blood-pressures are never as a rule above two hundred and fifty millimeters, while the latter may cause readings of three hundred or three hundred and fifty millimeters. Bleeding so often resorted to in uremia and other diseases may be efficiently controlled by this method and a serious drop in the tension thus prevented. In cardiac weakness low tension is met with, and by Riva Roeci's instrument we may gain an exact knowledge of the blood-pressure in these cases. It is also of assistance in other cardiac affections as well as other conditions by indicating whether a depleting or stimulating treatment should be carried into effect. In thoracic aneurism by this means we note whether we are getting any benefit from the Tufnell treatment and by it we gain, here as well as elsewhere, more accurate knowledge as to whether the drugs we are using for lowering the arterial tension are producing their effect.

I have made no pretence to give you all the chief advances in the progress of medicine during the past year. Some of you may be disappointed because I have not touched upon the progress of that in which you are especially interested. Many topics I have left to my associate, but both of us cannot do justice to this subject in the short space of time allotted to us.

The permanent establishment of The Rockefeller Institute for Medical Research in New York and the appointment of Dr. Flexner of Philadelphia, as its director, augurs well for the future progress of medicine in this

country. In fact the outlook of medicine everywhere is so promising we may expect much from the future. Let us all see to it that we do our part in furthering this advance in the knowledge of medicine.

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REPORT ON THE PROGRESS OF MEDICINE.

II.

CHARLES D. PHELPS, M. D.

WEST HAVEN.

TUBERCULOSIS.

In the paper on "The Progress of Medicine" a year ago the author alluded to the vast progress made in the treatment and care of tuberculosis patients as being one of the most important features of the year's history. In reviewing the medical journals of the past year one would again feel impressed by the intense earnestness with which individuals and States throughout the world are adopting the plan of campaign against tuberculosis which physicians for so long have been ceaselessly urging. The apathy which existed until recently, born of the feeling that efforts to stay the scourge were futile, has gradually been replaced by an active enthusiasm for the contest on the part of many, and on the part of many more a willingness for helpful coöperation with those who will take the lead.

The building of sanatoria, the passing of laws concerning sanitation, the forming of anti-tuberculosis societies, the creating and endowing of institutions for special research, are the principal lines along which the battle has been fought. Hardly a copy of any medical journal can be found in which is not recorded progress along one or more of these lines.

An item in one journal mentions the fact that New York has appropriated \$150,000 for a State sanatorium; that Pennsylvania has appropriated \$100,000, and New Jersey \$50,000, for the same purpose, while several other States are expected to make appropriations before the

Legislature adjourns. Our own State has recently appropriated \$25,000 to aid in the work of the New Haven Co. Anti-tuberculosis Hospital Association, which association was incorporated last October as a result of efforts made by a committee from the County Medical Association. Within the present year the well-equipped nucleus of their sanatorium will be in operation in Wallingford.

Among foreign countries, England, Germany and France, have shown especial activity along these lines, but the work in other countries is well worthy of praise. For example, an item mentions the recent formation of anti-tuberculosis societies having the sanatorium as a central idea, in many of the Russian cities and comments on the successful operation of the sanatoria in those cities where they are already established.

Though we may be sceptical as to the accuracy of statistics giving the percentage of cases cured by sanatorium treatment we cannot but realize the far-reaching influence of this method in preventing the spread of the disease. Every institution designed to receive patients in the early stages of tuberculosis, or willing to receive them in the later stages, diminishes to an extent which must speedily be appreciable, the number of existing foci which are a constant menace to the healthful. Even a stay of a few weeks in a sanatorium is of enormous advantage, for the patient not only can carry out at his home much of the routine treatment thus increasing his chance of cure, but he has learned to feel the responsibility resting upon him to avoid the infecting of others.

All laws regarding sanitation which result in more hygienic conditions during the hours of labor and in the home are certain to reduce the mortality from tuberculosis. A striking instance of this is seen in the steady decrease in New York city of deaths from this disease, there being 4.42 per one thousand inhabitants in 1886 gradually falling to 2.89 in 1901.

Of the numerous gifts designed especially for the study and prevention of tuberculosis that by Mr. Henry Phipps is probably the largest. He has begun the establishing in Philadelphia of an institute for this purpose, the hospital and laboratories of which will cost about \$200,000, and have an endowment of \$1,000,000.

Another gift of greatest importance not merely in the study of this disease, but all diseases, is the laboratory to be soon erected in New York city by Mr. J. D. Rockefeller for the Rockefeller Institute for Medical Research. It is expected to be the finest and most completely equipped institution of its kind in the world.

When we think of the influence that the study of biology has had and is having on the progress of medical science, we have reason for congratulation that the Marine Biological Laboratory at Woods Holl has been transferred to the care of the recently founded Carnegie Institute. This laboratory, which yearly contains workers from every large institution of learning in America, is to be enlarged and in equipment and endowment will surpass any biological laboratory in the world. When we consider how men capable of valuable research work have been hampered by lack of facilities and funds, we may well feel gratified with the brighter outlook for opportunities in that direction.

THE X-RAYS; FINSEN LIGHT; HIGH FREQUENCY CURRENTS.

At the last annual meeting one of our members made the prediction that by this meeting we would realize that the x-ray treatment of disease has come to stay. That prediction has been fulfilled. Although a year ago many were skeptical as to the therapeutic value of these rays, the testimony has become so overwhelming during the past twelve months that no one can now deny their efficacy in a long list of diseases. For practical use, however, there is no doubt but that the field for x-rays will be much more limited. Many diseases in which it

has been proved that they frequently exert a beneficial or curative influence will be found to be more satisfactorily treated by the older methods.

Among the diseases of which reports of cures apparently authentic have been made, are nearly all the chronic diseases of the skin including lupus vulgaris, lupus erythematosus, epitheloma, nevus, psoriasis, scleroderma, acne and chronic eczema. Sarcoma and carcinoma of various parts of the body, tuberculous glands, tuberculous joints and Hodgkin's disease are also included.

In England and several of the Continental countries the x-rays have had for a competitor in the treatment of cutaneous and subcutaneous affections, light obtained from the electric arc. Finsen of Copenhagen, first made practical use of the actinic rays therapeutically. His great success attracted the attention of the Danish government which made appropriations enabling him to enlarge his field of operations. Thousands of patients have been treated in the institution of which he is now the head, with such good results that his name is as closely associated with the light treatment as is Roentgen's with the discovery of the x-ray, and his methods have served as models in many other institutions which speedily came into existence.

The Finsen light treatment first came into prominence through its cure of lupus vulgaris which is very common in Europe. Gottheil of New York (*Phil. Med. Jour.*, Jan. 10th, 1903) is an enthusiastic advocate of the treatment for that and kindred diseases. He says:—"In the first place it is sure; all the cutaneous tuberculosis can be cured by its means and so convinced are some authorities of its certainty in this respect that they regard its failure as a mistake in diagnosis. It is absolutely painless and safe; thousands of cases have now been treated without the occurrence of a single accident; there is no alopecia, no dermatitis, no ulceration."

A comparison of the Finsen light and the x-rays shows that they both give their best results when the disease is superficial; that the ultraviolet rays are strongly bactericidal but of slight penetrating power; that it is the visible violet and the blue rays which penetrate the epidermis and are chiefly of use in lupus vulgaris. The x-rays on the contrary have been proven to enormously increase the number of some bacilli—notably the tubercle bacilli—causing final attenuation by overgrowth. The reaction from the Finsen light appears promptly and disappears rapidly with no permanent effects other than possible tanning of the skin. The x-rays' reaction is tardy, disappears slowly and sometimes results in very serious ulcerations. Improvement in technique, however, is rapidly eliminating the danger of x-ray burns, and the general opinion in this country seems to be that the x-rays are as efficient as the Finsen light in all diseases and superior to it in those diseases which require moderate or deep penetration of the rays.

An observation which is recorded by nearly all who use the x-rays extensively is that in certain cases in which the disease has failed to improve or has even become worse while under x-ray treatment, improvement has begun shortly after treatment was stopped, frequently progressing to a complete cure. This would suggest the necessity of great care to avoid too frequent or prolonged exposures.

"The disadvantages of Finsen's light treatment are its tediousness, the elaborate and expensive apparatus, the large staff of attendants it requires, and the small portion of the diseased area which can be treated at a time." (Henry Morris, *British Med. Jour.*, Oct. 25th, 1902.)

But without the elaborate apparatus which Finsen has evolved for producing the actinic rays, ordinary electric arc lights of various colors have given excellent results. Tsiechanski (*Praklitcheski Vrach*, Aug. 31st, 1902) has

reported eight cases of tubercular joint affections, five in children and three in adults, successfully treated with electric arc lights of thirty-five to forty volts and eighty to one hundred and twenty amperes or twelve thousand candle power. His conclusion is that the method is absolutely painless and replaces altogether all the other methods of treatment usually employed.

The use of High-Frequency Currents in malignant disease has been followed by reports of cures in inoperable cases and recurrence after operation. Active investigations along this line are in progress.

That we have in the x-rays and in the actinic rays valuable additions to our means of coping with chronic diseases of the superficial tissues is now admitted by all who have made use of these methods of therapy. The results obtained from treatment of sarcoma and carcinoma are also encouraging. Although they form but a small percentage of the total number for whom relief has been sought by this method, nevertheless numerous cases have undoubtedly been cured or improved so that we have abundant reason to hope that with more experience and more knowledge of the physical properties of these rays a large percentage of cancer cases may be cured.

SERUM THERAPY.

No new serums have won general acceptance by the medical profession during the past year, but investigators have been very active along these lines.

Dr. Paul Moser has prepared an anti-streptococcus serum which in a series of four hundred scarlet fever patients was followed by a mortality of between eight per cent. and nine per cent. As the mortality in scarlet fever epidemics ranges between two per cent. and forty per cent., his results are far from conclusive as to the influence of the serum. The Austrian Government, however, has made an appropriation for preparing the serum

and distributing it to the children's hospitals in Vienna.

Baginsky, Director of the Kaiser and Kaiserin Friedrich Children's Hospital in Berlin, in the *Berliner Klinische Wochenschrift* for December eighth, 1902, claims to have had excellent success with the new Aronson streptococcus serum in scarlet fever, improvement beginning almost immediately after its use. In a series of fifty-eight cases he had a mortality of 5.2 per cent.

Lenriaux in *La Semaine Medicale* of July sixteenth, 1902, believes that he has discovered the bacillus of whooping cough in the sputum of patients. He describes it as an aerobic motile bacillus of oval form, easily cultivated and stained. It develops with special rapidity upon peptonized bouillon or on serum, only a few hours being required. A serum which he has prepared from horses will cause a cure in from five to eight days, he claims, if given in early cases and proves beneficial at all stages. The dosage recommended is five c. c. for children under two years, and up to ten c. c. for those older. He has generally found one dose sufficient, but there is no contraindication to a second or third. Of the sixty-six cases which he had treated when this report was made, in only five was there no immediate improvement.

Among other serums which have been announced is one for tuberculosis by Dr. Marmorek of the Pasteur Institute, Paris; one for hay fever by Dr. Dunbar, Director of the Hygienic Institute in Hamburg; a new serum for pneumonia by Professors Panidi and Lizzoni of the University of Bologna; and a serum for cholera infantum by Dr. Flexner of Philadelphia.

Professor Behring has prepared a serum which he claims immunizes calves from tuberculosis. If this is confirmed on prolonged trial the discovery will prove of incalculable value to the agricultural interests and will speedily remove the danger to human beings of infection from cattle.

To determine the extent of this danger many experiments have been made during the past year and much has been written upon the subject. As a result of these investigations there has developed a decided tendency to consider the milk and meat from tubercular cows far less dangerous to mankind than they have hitherto been supposed to be. Dr. Koch (*Deutsche Med. Woch.*, Nov. 27th, 1902) reviews the work done since the publication of his article in 1901. He says that in spite of a request to the authorities in certain hospitals, they have failed to notify him of a single case in which intestinal tuberculosis might be due to drinking of cow's milk, and quoted statistics of postmortems in large hospitals in various countries showing that in those cases in which intestinal tuberculosis was found only a small per centage were claimed to be primary. In the course of his article he argues that if tuberculosis is caused through milk, cases should occur in groups which does not happen. After reviewing in detail the reports of Olivier and Huls he decides that they have not demonstrated that the infection took place from milk.

As regards the infection of a human being through tubercular meat, Koch still believes there is no case on record which proves its occurrence. He does admit the existence of cases where skin infection has resulted as a consequence of inoculation with bovine tubercle, though until recently he denied that there was any case on record in which lymphatic involvement followed. Troje, however, in the *Deutsche Medicinische Wochenschrift*, March twelfth, 1903, gives full details of a case where a young man while performing an autopsy on a tubercular cow scratched his left forearm. This wound about six weeks later showed evidence of infection and lupus gradually developed accompanied by enlargement of glands at the elbow. The lupus and glands were removed surgically but within a few months the site of the wound again showed infection and at the same time the left

axillary and left infra-clavicular glands became enlarged, microscopical examination proving them to be tubercular. Koch, after a careful examination of the history admits its correctness, but declares such cases are very rare.

"FOURTH DISEASE."

In the *Lancet* of July 14th, 1900, Dr. Clement Dukes first advocated the definite existence of a "Fourth Disease" distinct from measles, rubella (German measles) and scarlet fever, basing his claim upon the study of three epidemics in English schools. For many years there has been general acceptance of the teaching that rubella manifests itself as a disease resembling, usually, a mild form of measles but sometimes resembling scarlet fever. For distinctive purposes these types have been named rubella morbilliform and rubella scarlatiniform. Dukes claims that the latter is an entirely different disease from the former. His critics, while admitting that his view may be correct, do not feel that his notes on the epidemics were sufficiently exhaustive to be accepted as proving his theory.

Curtis and Shaw in the *Medical News*, Dec. 20th, 1902, describe what is apparently a typical epidemic of rubella scarlatiniform. There were one hundred and forty-seven patients out of a population of about four hundred who came under the care of the village physician. It is estimated that at least two hundred people acquired the disease. The usual symptoms were as follows: Sudden onset, malais, headache, sore-throat, (always present and often severe), enlargement of lymph glands especially along the posterior border of the sterno-cleido-mastoid muscle, pulse between eighty and one hundred, temperature averaging 100°F., a bright red eruption resembling that of scarlet fever on superficial examination but on closer inspection showing a macular quality. The eruption was universal, except that there was not much

on the face, and was followed in the majority of cases by a flaky desquamation like that of scarlet fever, though in others it was branny. In no cases was there sneezing, redness of the conjunctiva, vomiting, "strawberry" tongue or albuminuria. The incubation in two definitely known cases was nineteen and twenty-one days. Of the one hundred and forty-seven cases treated, sixty per cent. were over twenty years of age. The only death from the epidemic was a woman past seventy, who died from complications possibly due to the disease. The writers draw attention to the fact that these cases correspond with Dukes' description of "fourth disease" but they do not admit the necessity of considering them other than a variety of rubella.

THE BUBONIC PLAGUE.

Although infection can enter the system by the air-passages or the digestive tract, it is now believed that it occurs in that way but rarely, the usual method being through abrasions or by inoculations. The rat is undoubtedly an important factor in the spread of the disease and the rat flea is considered to frequently be an intermediate agent. The human flea, also, is thought to be responsible for much of the transmission of infection from man to man. Ants may carry the disease but mosquitoes seem to have been exculpated.

The Tersin-Roux anti-plague serum is credited by the French commission as followed by a mortality of fourteen per cent. as compared with seventy per cent. when the serum was not used, but reports from other sources are not so favorable.

YELLOW FEVER.

The continued freedom of Havana from yellow fever is rapidly convincing even the most skeptical that the mosquito is the intermediate host for that disease. No

cases have originated there between Sept. 28th, 1901 and May, 1903, though when cases have been imported from other cities the only precaution taken to prevent the disease from spreading has been the careful protection of the invalid from mosquitoes.

SMALLPOX.

Probably no announcement has created more wide spread interest the past year, than that recently made by Councilman of Boston concerning the results of work on the etiology of small-pox which he has carried on in conjunction with McGrath and Brinkerhoff.

For over ten years, in the lesions of vaccinia and of variola certain peculiar inclusions have been recognized as existing in the epithelial cells. These have been variously pronounced by different investigators to be living organisms, leucocytes or fragments of leucocytes, products of degeneration, but no one has hitherto brought forth sufficient proof to cause acceptance of these bodies as living organisms. Councilman believes that he has traced in them two complete cycles, one of which is passed through by the intra-cellular bodies, the other by the intra-nuclear bodies which are regarded as a further development of the former. In vaccinia only the intra-cellular forms have been found, while in variola both invariably appear. He believes that these organisms (which are classified as protozoa) are completely developed through two cycles in small-pox while in vaccinia only the primary cycle occurs. Numerous photographs were taken in the course of these studies, which seem to prove without question the accuracy of his conclusions. Dr. Welch of Baltimore has made a careful review of the work done and declares himself fully convinced that the organism described is the cause of small-pox.

That these bodies are without doubt protozoa and not products of degeneration is affirmed by Prof. Calkins of

Columbia University, a recognized authority on the subject of protozoa.

It is predicted by many that the valuable work of Councilman in connection with small-pox will speedily result in discovery of the causative agents of other eruptive diseases. Every such discovery marks a long step forward in the attempt to control the disease.

SOME FEATURES OF LEPROSY IN THE HAWAIIAN ISLANDS.

AUGUSTIN A. CRANE, M. D.

WATERBURY.

It is not many years since a surprisingly large number of people, otherwise well informed, had a very vague idea as to the size, population, nature, location, or even existence of the Hawaiian Islands.

At that time, it was of no particular concern or general interest to know what might be the prevalent diseases in such an indefinite locality or to learn that leprosy might be widespread among the inhabitants.

But now, with these cane-covered islands an integral part of the American Nation, with Hawaii an organized Territory sending a delegate to the floor of our National Congress, and representatives to our National conventions, who might and probably have cast the deciding votes at a critical point in determining national policy; now indeed, our school children know all about Hawaii, and we all know and deprecate the existence of a loathsome disease which flourishes in a soil no longer foreign.

The apologies which your President would offer for inviting me to write this paper would be based on the fact that he has visited Hawaii and seen leprosy there, and knew that for three years I had been Government Physician in that locality.

The classification of leprosy into Tubercular, Anesthetic and Mixed forms, is artificial, as these forms differ only in respect to the tissues involved as a result of infection (Sajous.)

Probably no article bearing on leprosy was ever written or any questions asked in regard to it which did not

contain the question or its attempted answer,—“Is leprosy contagious?”

Unfortunately it can not be answered categorically. Those who attempt to do so can give an array of instances to prove their “yes” or “no,” which are incapable of explanation and can only be refuted by giving a larger array on the other side.

The definition of the disease as given by Sajous so accurately expresses the situation that I repeat it here:—

“Leprosy is a chronic disease closely allied to tuberculosis, acquired by inoculation with Hansen’s bacillus leprae, but only while the system is susceptible to infection through vital adynamia, inherited or acquired.”

Sajous then goes on to explain that this definition differs from all others found in literature, and he rather deprecatingly submits it.

It tallies so exactly with my own views, theories and observations, and is so much better expressed than I could formulate it, that I adopt it at the outset.

The diseases usually quoted as requiring differential diagnosis from leprosy are Syringomyelia, Ainhum, Syphilis and Tuberculosis.

To these I must add another:—I was called some years ago onto a Connecticut farm to see a man, sixty years of age, who had never been away from the vicinity of his home, but who was considered by his physician to be a leper suspect.

It seemed like a farce to visit such a case, but I did so, and found a condition which in Hawaii would certainly have caused his apprehension and detention, and perhaps deportation. I passed the case on, with many misgivings, on account of the inherent improbability of leprosy, to Dr. Bulkley. He pronounced it a case of Morphoea, but considered it so striking in its leprous resemblances that he reported it at length in a paper read at New Orleans the following winter.

To show how variant are the opinions held by those whose point of view would naturally be similar, I will quote the annual report of the Hawaiian Board of Health in 1884, which quotes conclusively a report made by a commission of the Royal College of Physicians, after several years of study and investigation, in these words:—

“The committee having carefully considered the replies already received, are of opinion that the weight of value of the evidence they furnish is very greatly in favor of the non-contagiousness of leprosy.”

I will follow this with a quotation from another official in a report of the same board in 1886:—

“How any competent observer concludes that leprosy is non-contagious in these islands is to me only accountable by presuming that previous views from extraneous sources have clouded his powers of observation.”

Standard arguments adduced by those who insist on the contagiousness of leprosy are as follows:—

Wherever hereditary influences are apparently prominent, there can always be also found instances of post-natal exposure.

Foreigners affected can always give history of exposure. Sterility among lepers is so general that heredity could hardly account for the large number of actual cases. The majority of what few children are born to leper parents are still-born, or soon die. In 1884 the young children of the seven hundred and seventeen lepers confined on Molokai numbered twenty-six. Of these fourteen were above six years of age, and twelve below six. Of the twenty-six, two were lepers. In twelve months ten per cent. of Koknas developed leprosy. (Koknas are non-lepers who are allowed to live in the leper settlement and to draw rations, in order to serve relatives who are confined there.)

“It is in those places where leprosy is on the increase that the freest intermingling of the leprous and non-

leprous part of the community takes place." (Tilbury Fox.)

In 1886 a list of foreign born lepers on Molokai showed that every one of them had either lived long in the country or had previously lived where leprosy existed.

Per contra the stock arguments of the non-contagiousites are as follows:—

Cases of immunity are as numerous as striking. e. g. A laundress had washed soiled clothing from a leper hospital for seventeen years without infection.

Husbands, wives, nurses, showed surprising immunity.

Dr. Chew reports that in an analysis of 1,034 cases of leprosy in every stage of the disease, not a single case could be traced to contagion such as sleeping with, eating with, or nursing a leper, and handling or wearing his clothes.

It seems at first sight impossible to reconcile these conflicting views, but the definition quoted above from Dr. Sajous seems to me to absolutely harmonize them all. We surely see many striking instances of immunity from all contagious diseases, without accepting them as arguments against contagion. It can be considered as accepted that leprosy is contagious, but only from prolonged and intimate contact.

The first attempt to do scientific work on these points in Hawaii was the employment of Dr. Arning in 1882, as investigator.

He reported that the *Bacilli leprae* were found in all nodules; and in diffused infiltrations of the mucous membranes of the mouth, nose, throat, rectum and colon.

When these nodules and infiltrations break down, the bacilli are mixed with the discharges in enormous quantities. (This shows a probable method of contagion which is as uncontrovertible as it is incapable of absolute clinical proof.)

He reported that the bacilli were not found in anes-

thetic spots, nor in necrotic spots, but in the nerves supplying these spots:—they were not found in the urine, nor in the blood except in close vicinity to diseased tissue, not even at height of febrile attack.

In July, 1883, by permission of the Hawaiian Parliament, Dr. Arning inoculated with leprous pus one Keanu, a convicted murderer, whose death sentence was commuted for this purpose to life imprisonment. He thought that other factors in etiology were eliminated, and that the result would be very decisive.

In September, 1884, fourteen months later, Keanu was not a leper, although there were still bacilli in the scar showing their vitality. (They are also found in corpses one or two years after burial.)

Dr. Arning was ignominiously kicked out in 1885 by a political heeler who happened to be King Kalakaua's right bower, and who in turn was deposed by the bloodless revolution of 1887. So Dr. Arning never was able to complete his valuable bacteriological and experimental work, and never saw the results on Keann. Keanu became a leper in five or six years, but other etiological factors in his case had meanwhile been discovered which nullified the experiment.

I saw him in 1891. He then seemed perfectly happy as a drawer of government rations for life, and at that time it would have been very easy to obtain five hundred or one thousand other natives eager to submit to the same experiment under guarantee of government support for life.

After the downfall of the corrupt Kalakana-Gibson regime, later ministries endeavored to secure eminent European advisors.

Dr. Unna of Hamburg was given liberal offers, but could not go, and recommended Dr. Lutz, who labored for the two years 1891 and 1892. He was given twenty-six picked patients—nineteen lepers and seven suspects, for study and treatment.

Sister Rose Gertrude went out about the same time, her journey heralded by the press of Europe and America, and her progress a constant ovation. Accompanied by a rosewood piano, given by the Prince of Wales or some other philanthropist, she headed for Molokai to nurse lepers a la Father Damien.

The Board of Health found Sister Rose Gertrude rather a white elephant.

The Franciscan sisters who were running the nursing business on Molokai to the satisfaction of all concerned were not looking for recruits, and she was finally sent to assist Dr. Lutz at his investigation hospital.

After two years Dr. Lutz's nineteen lepers had become twenty-one, and five of the suspects were still suspects.

Sister Rose had become Mrs. Lutz and they had settled down to a lucrative private practice, with or without H. R. H.'s piano I can't say,—and here ended the second period of eminent foreign investigation.

The great Dr. Hansen of Christiana, recommended Dr. Holst in 1892, but the arrangement was never consummated.

Early in 1893 Dr. Goto came from Japan. He also was widely heralded and great hopes were entertained. His treatment consisted largely of hot baths with the use of numerous Japanese drugs. He had entire control of one hundred and forty selected cases, but after two years the results were indefinite and he left, although the hot baths have since been retained as a popular and satisfactory adjunct to treatment.

Altogether, the endeavors of the Hawaiian authorities to supply the best of foreign facilities for investigation and treatment have not brought adequate return for the expense involved, and the hopes entertained.

Dr. Arning wrote in 1890, after an absence of six years:—"Hawaii is not the proper field for elucidation of the etiological mysteries of leprosy."

There have been numerous hobbies and fallacies ex-

ploited in regard to leprosy, each of which had originally eminent backing, and considerable plausibility, and each had more or less professional endorsement from some physicians in Hawaii.

The partisans of each of these talked so much and so loud on their respective themes as to cause fairly widespread discussion and acceptance from the laity, who assumed that loudness and persistence meant convincing argument and weight of evidence.

The laity assumed moreover, as laity will, that these academic questions were such as required them to take sides on and adopt positions, thereby showing the same attitude as so many of the Connecticut laity have recently assumed on the subject of vaccination.

One hobby was that leprosy (Sir Jonathan Hutchinson, I believe) was due to a fish diet. Quite likely, but the Hawaiian natives had lived on a fish diet for hundreds, perhaps thousands of years, and never contracted leprosy till after the middle of the last century, and after they had become accustomed to a far greater diversification of diet than they had ever known before. Truly a small and unimportant question, but one which had in my time caused acrimonious professional and wide lay debate.

Another:—Is leprosy contagious?—The answer of the agitators was invariably "No," and the debate was endless and bitter. The present scientific view is substantially under most definitions of the word in support of this negative, but the agitators worked their claims not on these lines, and unfortunately as an argument against segregation, which is by no means to be eliminated as a policy on account of the small measure of contagion in its usual sense.

Another which is too wild for refutation was the claim that leprosy was not a distinct disease but was merely a stage of syphilis.

It would be a matter of small import if a few doctors

and many laymen in a small community chose to accept this view and agitate it, but when it resulted in some doctors never prescribing anything but iodide, and the laity having another argument to wage against segregation, it was a handicap to efficiency and unanimity of action. The point itself is pretty thoroughly dismissed by Dr. Mooritz in a report from the leper settlement when he states that between leprosy and syphilis there is an analogy but no homology.

The history of leprosy in Hawaii is involved in obscurity. Although the native name, *Mai-Pake*, means Chinese disease, it is generally conceded that the disease was not introduced by the Chinese. It is also true that in proportion to their number the Chinese in Hawaii are not especially susceptible to leprosy. The first segregation law was passed in 1865, and the first deportations to Molokai were in 1866. The mortality in the leper colony was in the first decade twenty-two per cent, and in the second twenty per cent. per annum. This has now gone down to about twelve per cent.

The authorities in Hawaii had from the first a difficult task. The people of sufficient intelligence to approve of the segregation of lepers and recognize its necessity were in such a microscopical minority as to handicap them on every side. It can readily be recognized that the number of people who did not believe in compulsory segregation was very great; although their grade of intellect was not high they could talk loud.

If they had lived in Connecticut they would have joined the anti-vaccination society. But there they could only resist segregation, obstruct its enforcement, and occasionally shoot a sheriff. Still, from very early after the time when the extent of leprosy was recognized, there had been devised and was in force a system of segregation remarkable for its efficiency and good management.

In 1866, one hundred forty-one lepers were sent to

Molokai. Since then the annual number has varied from forty-three to five hundred seventy nine. The latter number were "admitted" the year that I began my service, so I can claim to have been present during the most active period of the campaign.

The process of commitment is as follows:—The Government Physician for the district, upon observation or report, issues a warrant for the apprehension of any person in his territory, as a suspected leper. This is an awful power, and could readily be awfully abused, but I never heard of improper use being made of it. This warrant is given to the District (County) Sheriff who executes it in person or through a policeman, and the suspect is arrested and confined in the nearest lockup in cells specially devoted to that purpose.

Making these arrests is no pleasanter nor safer process for the policemen, usually natives, than is the arrest of criminals. A white sheriff was murdered when executing one of these warrants about five years ago.

When the suspect is arrested, the physician is notified of the fact, and goes to the jail and makes an examination, taking all the time and care which he wishes, or which the case warrants.

He may then discharge the party as not a leper, or may discharge him under parole to report at stated intervals for further examination. This parole is I think always honored. Or he may declare the patient to be a leper. In the latter case, the leper is kept in confinement until the next sailing of some vessel of less than one hundred tons burden, for Honolulu. This apparent quibble is because vessels of over one hundred tons burden are liable to carry passengers, and it was considered better policy to transfer lepers on other boats. This period of detention might be long or short, and during it the patient is allowed visits from his friends, and may or may not be under medical treatment, as the doctor elects.

On arrival in Honolulu, the lepers are kept in a receiving station under observation and treatment. During my service they were examined by a board of three Honolulu physicians, and could not be sent to Molokai unless all three concurred in the diagnosis, nor could they be sent back home unless all three agreed they were non-leprous. If there was a disagreement they were kept in the receiving station until their cases became distinct pro or con.

This was the rule during my service. At the present time all suspects at the receiving station are examined by a bacteriologist microscopically, and no person is sent to Molokai in whom the bacilli of leprosy has not been demonstrated.

The common supposition is that Molokai is the leper island and the leper settlement. Such is not the case.

Lay a yeast cake on the table, slide a copper cent under it half the diameter of the cent, and let the other half protrude. The yeast cake and cent will represent the Island of Molokai and the visible portion of the cent will represent the leper settlement,—a flat plain on the windward side of the island, fertile in grass but nearly devoid of trees, cut off from the rest of the island by a precipice impassable except by one trail. This plain contains about eight square miles of land, two villages and five hundred and twenty buildings. This combination affords a prison and a refuge almost ideal in character. Here have been imprisoned since 1866, nearly six thousand lepers. The highest number at any one time was twelve hundred and thirteen in 1890. Since then, in spite of vastly improved methods of search and greatly increased thoroughness of apprehension, the number has dwindled to 874 on December 31st, 1902.

This must not be taken as meaning that the disease is necessarily on the decrease, as the population has decreased *pari passu* during the same period.

It has been prophesied that leprosy in Hawaii would become extinct. This is quite possible, and if it does it will be because dead Hawaiians are not leprous.

The governmental care of lepers in Hawaii, in and out of Molokai is scientific, generous, and humane.

Of the 874 lepers confined on December 31st, 1902, 794 were Hawaiians, thirty-nine Chinese, thirteen Portuguese, seven Germans, five Japanese, four Americans.

Of these 533 were male and 337 female. This proportion of about two to one between the sexes holds good all over the world.

On Molokai they enjoy liberal rations, comfortable homes, congenial occupations (i. e., rest and vinery), a water supply abundant and pure, a climate the best in the world. Hospital facilities are offered far in excess of what the patients will utilize; medical attendance and supplies are on a liberal basis. Franciscan sisters and Trappist brothers attend to nursing and dressing with a zeal and loyalty that is touching. Church facilities are more than ample. Protestant and Catholic pastors are active and faithful, and the labors of martyred Father Damien are well perpetuated.

In 1895, a great advance was made by condemning and buying up the Kuleanas of Kamaainas, i. e., the homesteads of former residents who had held on to their property and homes, after the district had been used for leper purposes. It seems strange that this condition had been allowed to go on for thirty years. The cost of supporting the lepers had been about \$130 per capita per annum.

Treatment:—This is not a thesis on leprosy, and not a place for a discussion of its therapy. Leprosy in Hawaii does not add to the world's knowledge of treatment except in a negative way.

Like all other incurable diseases, this affords an endless number of sure cures which have been pressed upon the government by ardent supporters, and most of

which have been used. Medicines from India and doctors from Japan have been given every facility, and have all shown their futility.

Hot baths, gurjun oil, chaulmoogra oil, ichthyol, chlorate of potash, chrysarobin, corrosive sublimate, pyrogallie and salicylic acids, have all proved of value; otherwise the treatment is symptomatic and hygienic.

Except to eliminate syphilitic factors, an important point in many cases, iodide of potash is valueless.

It has been found that among the very earliest manifestations, both clinically and bacteriologically, is a leprosy rhinitis, with later a profuse discharge. Local treatment directed to the disinfection of the upper air passages is theoretically and actually of the greatest value in subduing the local trouble, retarding auto-infection and protecting the neighborhood from contamination.

Why should this garden spot, this "Paradise of the Pacific" become the seat of such a disease where it became, in the language of the official report of 1886, "more virulent than elsewhere on the globe?" To answer this I will revert to Dr. Sajous' definition and his requirements of a "vital adynamia, inherited or acquired."

As instances of conditions which may produce this "vital adynamia," Sajous enumerated:—

"Insufficient food, unwholesome food, excessive use of salt, a fish diet, exposure to cold and damp, alcoholism, malaria, overwork, syphilis, tuberculosis."

In all of these ten items, with the exception of "overwork" and, perhaps, "tuberculosis," is the Hawaiian exceptionally well grounded as a candidate. If these are the preliminary requirements for a fertile soil:—when the seed is implanted, why should not the Hawaiian race accept the infection greedily and be decimated thereby?

These same factors accompanied with, and largely

caused by, foreign contamination and an artificial and unadaptable civilization, had already before the prevalence of leprosy killed off ninety per cent. of the sturdy race.

What chance had the remaining ten per cent. with these deadly predisposing factors still active, against this new assault by the most loathsome and hopeless disease known?

Civilization and syphilization have gone hand-in-hand.

Benevolent assimilation has done its great work,—cane grows in profusion over the lands which the natives once owned. The white man is making great fortunes, the Chinaman is doing all the work, Old Glory is floating at the masthead.

The few natives who are left are all Christians and those who are lepers and those who are not, all have their bibles and can read them in the English language. They can send a former prince as delegate to Congress, can have plenty of poi to eat without any labor; plenty of gin to drink with a little labor; plenty of Calvinistic preaching or Catholic mass,—why shouldn't they be happy? and the best of it is—they are!

THE FINSEN LIGHT, X-RAYS, AND HIGH-FREQUENCY ELECTRICAL CURRENTS IN CERTAIN DISEASES OF THE SKIN.

L. DUNCAN BULKLEY, A.M., M.D.

The subjects of photo-therapy and the influence of various electrical currents in certain diseases of the skin are so large and have been so abundantly elaborated during the past few years, that it would be quite impossible, as well as unnecessary, to make any full presentation of them on this occasion. But they have been of such intense practical interest to me that the brief statement of personal experience in regard to them may not be without interest to others.

At the outset I may say that it is difficult not to write too enthusiastically in regard to some features which will be mentioned presently. Some of the results obtained, and some which have been credibly reported on all sides, with photographic representations, as well as those shown at medical societies, are so remarkable and satisfactory in certain cases, that the tendency is to form a hasty judgment.

It must be acknowledged, however, even by the most conservative, that the measures which are to be discussed have passed the experimental stage, and that there are good grounds for believing that they are, perhaps, the most important therapeutic agents which have been added to our armamentarium for a very long time. I use the words "added to our armamentarium" advisedly, for it is a mistake to suppose that we are always to expect such results as are often reported, in every case, or that these measures should be employed hastily or carelessly in every instance of the affections men-

tioned, to the exclusion of other and well-attested methods of treatment. There are limitations to these lines of procedure, some of which will be pointed out later, and very frequently the best results will be obtained by the judicious use of other proper measures in conjunction with them, as will be also shown.

Time and space would altogether fail to go at all deeply into the subject of photo-therapy, which finds its culmination in the so-called Finsen light treatment, especially as practiced in Copenhagen. There have been many modifications of this, with varying results therapeutically, which it would be beyond our present purpose to discuss, and I will only present to you my personal experience, obtained in Copenhagen last summer, where I spent many hours daily, sometimes all day, at the Institute for quite a period. I may say that the result of my visit was to make me most enthusiastic in regard to the treatment as practiced there, and to lead me to bring with me a complete apparatus, of the newest design, which I have installed in one of my offices: of which however, more hereafter.

For those who are unacquainted with the subject I may give a few facts in regard to what is known as the Finsen Light Institute. For many years Dr. Finsen, a highly esteemed practitioner in Copenhagen, had experimented with light on his own person and also in connection with the Commune Hospital, in connection with the large Dermatological service of Professor Haslund, of some two hundred and forty beds. Later, in 1896, the Danish government took up the matter and gave 240,000 kronen, or over \$60,000, for the construction of the present Institute, and contributes 25,000 kronen a year to its support.

The Institute is located about two miles from the center of the city, where the houses are surrounded by gardens. The building is a substantial brick structure, one and two stories high, about one hundred feet long

by thirty wide, on a corner with grounds around. At one end is the large room containing the electric lamps, and adjoining are consulting rooms, etc. The patients all live in neighboring boarding-houses, and come daily for treatment. Last summer there were one hundred and fifty-four cases under treatment, whom I saw day by day in the consulting room, in the light room, and while having subsequent dressings applied. There are twenty-eight lamps, or rather seven arc lamps with four tubes from each, and, one being kept always in reserve, there were twenty-four patients treated at once, for an hour at a time; there being six sances a day, this would make one hundred and forty-four possible treatments per day: sometimes one patient was given several treatments a day, if the surface was large.

The patients now come from all over the civilized world, and all languages are heard; I saw several from the United States.

As is well known, the Finsen light has achieved its high reputation from the results obtained in lupus vulgaris; the effect of the treatment in other diseases, unless it be epithelioma, are not worth considering at the present time. But the results obtained in lupus vulgaris are indeed astonishing, and far exceed those obtained by any other method of treatment with which I am acquainted. While most of the measures employed for lupus often leave unsightly scars, the cosmetic results from the light-treatment, as practiced in Copenhagen, leave little to be desired. Unless there has already been much destruction of tissue there is often very little scarring, as is shown in the photographs before and after treatment which are here exhibited.

Lupus vulgaris is a relatively rare disease in this country, forming less than half of one per cent. out of twenty thousand cases of miscellaneous skin disease. It is much more frequent in Europe, and after most laborious investigation Finsen found that there were yet

about one thousand three hundred patients in Denmark, still untreated up to 1900. In 1898 and 1899 there were treated in the Finsen Institute four hundred and fifty-four lupus cases, and up to last summer the total number treated had exceeded one thousand. In April, 1902, there were twenty-seven new cases, in May twenty-one, in June thirty-two, in July twenty, and in August twenty.

Recent reports show that of eight hundred carefully treated cases there had been benefit in all but two or three per cent. About seventy per cent. are reported as cured, though in about twenty per cent. the disease returned after varying intervals. Recurrences were chiefly due to reinfection of skin from mucous membranes, which in most situations are not accessible to light treatment. (Montgomery, *The Medical News*, May 2, 1903, p. 848.) It is to be remarked that the physicians at the Institute are most painstaking and careful in regard to clinical histories, and photographs are taken of patients at the beginning of treatment and subsequently; and also that patients are kept track of, and many of them report from time to time as to their condition.

At the International Dermatological Congress in Paris, in 1900, a dozen patients who had been cured of lupus were brought for exhibition, with large photographs of their original condition, and the approbation given by those present was unbounded. These patients had been free from the disease for periods of from a few months to nearly three years.

Such being the really remarkable results obtained in Copenhagen, what of its practical applicability elsewhere? In regard to this I have to express my grave doubts if this method of treatment will ever become widely used; but I believe that where patients can afford it, and are willing to devote the time and patience to this method of treatment, as practiced in Copenhagen, the results will be fully satisfactory.

This brings us to a brief consideration and mention of the mode of procedure and details of the treatment, as observed in Copenhagen, and mention will be made only of lupus.

Among the cases seen were a number which had been of many years duration, some where the disease involved large areas, and some where considerable destruction of tissue had already taken place; many had been under repeated and prolonged treatment by other means. I do not think that any are refused treatment because of the severity or extent of the disease, but such cases often require an amount of treatment which would be discouraging, were it not that such admirable results have been obtained even in discouraging cases. In my notes I find mention of several cases which had been three or four years under treatment, and I find record of cases who had had respectively 721, 545, 493, 481 and 438 sittings, and one case of lupus erythematosus, in a woman who had 524 sittings, with a perfect result.

When it is realized that each seance is one hour long, and that sometimes, on account of the inflammation arising the same spot cannot be treated again perhaps for a week, it is readily seen that much patience is required on the part of the patient, physician, and attendant. For the proper application of the light one attendant is required for each patient, to hold the compressor lens to the point treated, for the entire hour. There are thus twenty-four attendants by the side of the twenty-four patients treated at one seance. The day is divided into six periods, of seventy minutes each, indicated by the sounding of a bell, ten minutes being allowed for changing patients on the tables.

Every patient is inspected daily by the physician in charge, and the treatment directed by means of a blue pencil mark about the portion to be treated. After the light-treatment the patients go to a dressing-room where a corps of four or five attendants apply various suitable

ointments, spread on lint, to the affected parts and bandage them up. Before going to the physician and thence to the light-room, all the dressings, which have remained on the affected parts are removed by the same attendants, and the parts cleansed for inspection.

There is also a special laryngologist at the Institute, every day, who gives local treatment of various kinds to portions affected with lupus within the buccal cavity, nose, throat and ears, where the disease is not accessible to the light.

It is thus seen that there is much more to the so-called Finsen-light treatment, as practiced in Copenhagen, than the mere exposure to light, and I believe that some of the more or less unsatisfactory results which are often spoken of come from an imperfect carrying out of the complete technique necessary to produce the results.

Time and space forbid dwelling longer on this branch of our subject, though many points of interest arise to my mind; but I must add that my notes show that certain quite localized cases of lupus were cured in a reasonably short time. In one boy, aged eighteen, a lupus of the nose was replaced by a perfect cicatrix after sixty-four sittings; in a woman aged twenty-two, after fifty-six sittings; in a boy of eighteen, in thirty-nine sittings, and in a girl of fourteen, in fourteen sittings. In one girl of seven an extensive lupus of the face was removed in five sittings, and in a boy of eleven a lupus of the left cheek was healed in seventeen sittings, with a relapse of a few small points a year later, which, it was thought, would disappear after about three sittings. In one boy, aged about seven, of whom I have photographs, a small lupus of the cheek was removed in three sittings. Relapses certainly take place, in a certain proportion of cases, but quite often the disease appears in quite another place.

Much, however, as I was impressed and gratified with

the results of this treatment as observed in Copenhagen, I have to acknowledge that although I have a most modern Finsen lamp, obtained there, fully installed in my office, I have not yet made use of it, but no doubt shall do so when necessity arises. And the reasons relate to the technical difficulties of its application, that is the attention of an attendant for an hour, daily, with subsequent dressings, but mainly because in most cases good results can be obtained by the X-Ray, with much less expenditure of time.

It would be quite out of place to attempt any extended consideration of the theory or even of the practice of the X-Ray, which have been so abundantly presented to the profession by many able observers of late years, and I only wish to speak of the subject as I have been practically acquainted with it, and to add my small quota to the ever increasing experience of the profession with this wonderful remedy.

My figures relate to seventy-eight cases, twenty-eight in private practice and fifty at the New York Skin and Cancer Hospital. Of these cases, there were of epithelioma thirty-two, carcinoma eleven, lupus nine, verruca four, sarcoma two, keloid two, and of over a dozen other diseases one or more cases each, some of which will be spoken of later. In the treatment of these cases there were 1,160 sittings, 409 in my office and 751 in the Hospital. In all these applications of the X-Rays we have never had a burn, other than a slight excoriation at times, which has quickly healed and has served a beneficial purpose.

The treatment in my office has been under the direct care of my associate, Dr. Charles M. Williams, and at the Hospital Dr. George Alfred Lawrence has had charge of this department. To both of these gentlemen I am deeply indebted for the careful and painstaking manner in which they have both administered the X-Ray, and kept full records and notes, and for a full synopsis of the

same. Without them this paper could not have been written.

Of the thirty-two cases of epithelioma twenty-one were primary and eleven were recurrent or had had previous more or less radical treatment. As it is only about a year that I have had actual experience with this treatment, and the service at the Hospital has been in operation only about six months, it is, of course, too early to speak in regard to the permanent results in the cases referred to. But the evidence of many reliable observers has been accumulating now for several years, and there are many cases on record where a permanent result has remained for two or more years; so that when the morbid process has disappeared and a smooth, supple surface has resulted we may reasonably hope that the disease will not recur. It has also been shown that relapses, if taken reasonably early respond equally well.

Some of the cases treated, especially in private practice, have yielded results which were gratifying beyond all that could have been imagined some years ago.

Mr. P., aged forty, had an epithelioma below the right eye, and extending to the angle of the nose, of about ten years' duration. It had been scraped and burned several times, the disease always returning, until he came under treatment on October sixteenth, 1902. He received thirty applications of the X-Rays, covering a total of 194 minutes, averaging a little over six minutes each, until January second, when the surface was smooth and natural, the outline of the diseased surface being hardly perceptible, so perfect was the cicatrix, if it could be so called. He has repeatedly written, since his return home and the skin seems more natural as time goes on.

Mrs. B., aged forty-one, had a large, slowly growing epithelioma of the left temple, extending from the roots of the hair to and encroaching upon the outer angle of the eye. The disease had lasted ten years or so, and

had been submitted to severe treatment half a dozen times before coming under my care, the lesions always recurring and advancing, so that the eye was threatened. She received twenty-seven applications of the X-Rays, over a total period of one hundred and twenty-five minutes, averaging less than five minutes each. The nodules along the border and within had then entirely disappeared, all ulcerations were perfectly healed, and the skin over the diseased area appeared almost normal, so little did it resemble cicatricial tissue, and still remains so.

Equally good results may also be obtained even in advanced age, as in the following case:

Mr. T., aged eighty-six, had just above the left zygoma a small slightly ulcerated epithelioma, of about two years' duration. Sixteen applications of the X-Rays, over a total period of ninety-four minutes, or averaging about six minutes each, sufficed to entirely remove the trouble, leaving a soft and supple skin.

All the above were instances of a rather superficial form of the disease, but very many cases are on record where the harder forms, of a more deeply ulcerating, rodent ulcer type also yield perfectly, as in the following case:

Mr. S., aged sixty, had in the center of the left cheek an ugly, ulcerating epithelioma nearly an inch in diameter, with raised, hard edges, and a raw center. Twenty-four X-Ray applications, for a total period of 156 minutes, or a little over six minutes each, produced a perfect healing with a very satisfactory surface.

The X-Ray often acts most favorably on cases which have recurred again and again under approved methods of treatment, as in the following case:

Miss R., now fifty-one, came to me first eleven years ago with a small epithelioma on the center of the bridge of the nose. This was very thoroughly curetted, with the subsequent application of pure pyrogallie acid, and

the result seemed perfect. But within a year new epitheliomatous nodules appeared in and around the scar, which were again radically treated, with apparently good results. The same process has been recurring again and again, even in spite of severe treatment, sometimes with caustics. After an absence of about a year she returned, October eighth, 1902, with a mass of new growth beneath the skin on the left side of the nose the size of a small bean, and some ulcerating surface below, producing great disfigurement. She would not listen to any radical surgical operation, indeed this was hardly possible without producing much greater disfigurement, as the new growth reached nearly to the eye.

Under the application of the X-ray, at first every day, and latterly with increasing intervals, to a week, all ulceration has healed and the hard, raised mass has so subsided as to be hardly perceptible, while the cicatrization produced by the former operations has improved in texture so as to be very little noticeable. She is still under occasional treatment in order to secure more perfect results.

Mention should be made of a case of epithelioma of the lower lip, where the X-Rays failed to be of any service.

Mr. R., aged sixty-five, was sent to me October ninth, 1902, with a characteristic epithelioma in the center of the lower lip, which had existed about two months, increasing rather rapidly. He had been a heavy smoker of a clay pipe. In this instance nineteen applications of the X-Ray over a period of 148 minutes, in a month, seemed rather to aggravate the trouble, and complete excision was then performed, with good results thus far. From the experience of others it is doubtful if it is wise to attempt the treatment of severe epithelioma in this situation with the X-Ray, except in cases where operation is absolutely refused, but in mild and slowly advancing cases a trial may be justified. There have been

some satisfactory results in cases where the disease has recurred after operation.

It is too early to report any definite results on the cases of carcinoma, mainly of the breast, which have been treated. Other observers, however, have reported very favorably in certain cases, and some patients have been exhibited at the societies where remarkable results have been obtained in recurrent carcinoma of the breast. All agree that the X-Ray is very valuable in checking the pain, and repeatedly ulcerated masses have steadily shrunk under its influence, leaving a pliable and healthy cicatrix. We have had eleven cases under treatment, some of them with gratifying results.

Cancer of the internal organs has seldom been observed to be favorably affected by the X-Ray, and I have no experience of value to offer on this subject.

Sarcoma, when external, has been reported as yielding to the X-Ray, but when deeply seated little effect is produced. In the two cases treated, one in the throat, and one of the buttock, back, and thigh, recurrent after severe operation, little or no apparent benefit resulted. The X-Ray failed completely to give relief to excruciating pain in the latter case.

Nine cases of lupus were treated by the X-Rays, four in private practice and five at the hospital. All are doing well, but it is too soon to report as to the ultimate results. Under this treatment the lupus nodules redden and gradually become absorbed, without ulceration, and smooth, healthy cicatricial tissue takes its place, without any contraction.

Two cases of keloid are still under treatment, with satisfactory results thus far: the hardened masses are softer and are flattening. Favorable results have been reported in this condition by several observers, and photographs shown of smooth, hardly discernible cicatrices taking the place of former ugly masses.

A very remarkable case of psoro-spermosis, or kera-

tosis follicularis, was treated at the hospital with surprising results. The woman, aged fifty-six years, had been bedridden for many months, on account of the excessive development of the disease on the soles of the feet. Although submitted to varied and careful treatment, nothing gave relief except thorough and deep enuretting under ether, which was done three or four times, but always with a recurrence of the disease. For some months before the X-Ray treatment she suffered so greatly from the deep, gnawing pain that morphine was continually required to secure any sleep. After two applications of the X-Rays the pain ceased; a moderate burning was induced and it took a week or more for the surfaces to heal, with appropriate treatment. The X-Rays were then applied less strongly, several times a week, and within a month she was up and around walking comfortably. She had in all twenty-five sittings of from five to fifteen minutes duration each.

A case of psoriasis in the hospital in a girl, aged twenty years, had the X-Ray treatment to the back, with excellent results. The large patches disappeared after about eight treatments of five minutes each, twice weekly, the eruption on other parts, not thus treated, remaining active, even under good local treatment. Such cases are occasionally reported, but it is questionable if there is any real or permanent value in the treatment.

In a case of hyperidrosis of the palms in private practice, the controlling effect of the X-Ray was very noticeable. The young lady, aged eighteen, had long had cold hands, whose palms were continually dripping with perspiration, and a single application of the X-Ray, for eight minutes, served to cause them to be perfectly dry for three days, when the trouble returned and the application was repeated a week later with similar effect. The same result has been reported by other observers, and in many cases this means will serve to check more or less permanently this trouble elsewhere also, as in the axillae.

Time will not permit further record of clinical facts, nor of mention of the many interesting features of this treatment which are accumulating on all sides. But enough has been said to show that in the X-Rays we have an agent of unusual and exceeding great value, the limits of which we have by no means yet reached. Much of the work still being done is, of course, yet experimental, for time enough has not elapsed since its practical introduction into practice either to prove what it is capable of in many directions or even to determine exactly the best method of its use; for, as yet, observers often differ a good deal in regard to many matters, such as the length of time of exposure and the frequency of its application, the distance of the tube from the affected part, the length of the spark gap, the speed or strength of the electrical current, whether from a coil or static machine, etc. Many of these items vary as to the case, and the individual idiosyncrasy, and it is quite out of the question to enter upon them in the present writing.

It is important, however, to have this important therapeutic agent taken up intelligently by educated medical men, and not to have it left in the hands of quacks, nor even of medical men who may make the X-Ray more or less of a specialty. It is an agent capable of doing very much good when used exactly rightly, of doing harm when wrongly employed, or of being inefficient and useless under wrong circumstances.

Very little time is left to speak of the third topic, namely, high frequency currents of electricity in certain diseases of the skin, but although this is the most recent addition to this class of therapeutics, experience shows it to be of the utmost value in certain diseases of the skin.

It is difficult to define briefly just what is indicated by the term high frequency currents, the problems of the physics of electricity are so complicated; but it may suffice for our present purpose to state that the apparatus used is an attachment to a static machine, intro-

duced by Dr. Piffard of New York, whereby an electrical discharge, termed hyper-static electricity, is produced, rich in violet rays, which passes through glass and is administered through a glass or carbon electrode, the two having quite different effects.

This I have used in my office in thirty cases, for twelve different complaints, and with almost unvarying satisfactory results. Brief mention may be made of some of them.

The carbon electrode is capable of producing superficial inflammation and destruction of tissue which is very valuable in certain cases which often prove troublesome, but for which more radical measures are hardly desirable or are refused. Thus, I have applied it to warts in five cases and the glass electrode in one case. The effect of the carbon electrode is to produce a superficial inflammation, sometimes with slight effusion of blood in the tissues, after which the mass dries down and in a few days falls off, leaving a slightly depressed spot, but no cicatrix, as the skin becomes about normal. This has served a very satisfactory purpose in several cases of warts on the hairy scalp and forehead. Four cases of xanthoma about the eye have been thus treated. A superficial crust falls off in a few days, leaving an improved surface, and a few applications cause healthy skin to replace the diseased tissue. I think this method will prove a valuable substitute for excision, which is often apt to give annoyance by the contraction of the eyelid which follows. In a case of molluscum fibrosum where there were literally thousands of tumors over the body, face, hands and arms, we are successfully removing some of those in exposed situations. Under two or three treatments they shrivel up after the crust has fallen. I have also used the carbon electrode successfully in the removal of small pigmentary moles, in three cases.

In one extensive case of nevus flammeus or port wine mother mark, the application of the carbon electrode ap-

parently caused the disappearance of the trouble from the portion treated. The girl, aged fourteen, has left the city, to return in the fall, and I cannot now state positively the ultimate results. But, from what I know of the action of the current used thus, I expect to find the surface greatly benefited, though undoubtedly further applications will be needed to reach deeper blood vessels.

High frequency currents have been recommended, especially in France, in the treatment of that most obstinate complaint lupus erythematosus, and very gratifying results have been reported. I have had three cases under treatment, and while it is too early to state definite results, the disease is in all of them steadily diminishing. In these the glass electrode is generally used, from three to ten minutes, once a week, or oftener.

High frequency currents, used with the glass electrode are also valuable in some of the inflammatory affections of the skin. They will allay itching, and, used on infiltrated patches cause their absorption. I have employed it in two cases recently, with beneficial results, but cannot yet speak positively in the matter from personal experience.

This method is also valuable in hastening the disappearance of obstinate acne lesions, although, of course, for the real treatment of the disease and permanent results careful internal treatment, medicinal, dietary, and hygienic is necessary. I have employed it satisfactorily in three cases.

In bringing this too lengthy and perhaps too personal paper to a close I can only say that I am as yet a novice and a student in the lines of work mentioned, but with each day's experience and study, I am more and more confirmed in the opinion that in light and electricity, (for they are but different forms of the same energy), we have means which, if properly used, may and should be of the very greatest service in the treatment of many

forms of disease, both of the skin and other organs, and form a very great addition to our armamentarium in actual practice.

DISCUSSION.

Dr. McDonnell: The virtue of the methods brought before us is so great that we are deeply indebted to Dr. Bulkley, in the treatment of diseases of the skin by the X-Rays. From what the Doctor has said, it is evident that the extremely expensive treatment required for the Finsen Light is prohibitive to the ordinary patient. With regard to the X-Ray, the opposite can be said.

A member mentioned a case under treatment by X-Rays. The case is still under treatment. It is working fine there. In taking up the valuable part of these new discoveries, I think there is a tendency to overlook the older methods of treatment. We ought not to pin our faith to the new to the exclusion of the old and tried.

Dr. Bulkley: I would request the Doctor to tell about the patient mentioned in my paper.

The Doctor: The patient was wheeled in perfectly helpless and I have not seen her since. She is dancing now.

Dr. Bulkley: Well, if she is dancing, she must be cured.

THE X-RAYS AS A DIAGNOSTIC AND THERAPEUTIC AGENT IN PULMONARY TUBERCULOSIS.

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NEW YORK.

The following lantern slides were shown upon the screen in connection with the reading as indicated in their proper places:

1. Normal Lung.
2. Incipient Tuberculosis.
9. Small spot of Consolidation between third and fourth ribs.
7. Small cavity and consolidation.
4. Large cavity.
5. Acute pneumonia and phthisis.
10. Collapse of lung after pneumonia (tubercular).
3. Miliary Tuberculosis.
6. Pleurisy with effusion.
8. Aneurism of aorta (simulating tuberculosis).
11. Aneurism of aorta and general dilatation of the heart.

A few years ago nothing was known of the possibilities of the X-Rays, either as a diagnostic or therapeutic agent. At first they were used as a diagnostic agent in diseases of the skeleton, and it was believed that they would be of value only in surgical cases. In 1896 Charcot of Paris, published a paper on the value of the X-Rays as a diagnostic agent in pulmonary tuberculosis, and this was closely followed, in the spring of 1897, by a series of seventy-three cases published by the writer;

three or four months later Williams, of Boston, published his reliable article on the subject. The knowledge of their usefulness in diagnosis has grown slowly in the minds of the profession until they are now recognized in this capacity by the best authorities, their value and reliability being questioned only by those whose judgment is warped by lack of knowledge in the methods of using the Ray, or by one unfamiliar with the appearance of the normal chest. The X-Rays are especially of value, as a diagnostic agent, in uncertain or very incipient forms of pulmonary tuberculosis. Not only are they accurate in corroborating signs discovered by auscultation and percussion, but we can also discover by their aid incipient lesions or small isolated foci of infection not recognizable by ordinary methods of examination. They enable us to recognize more fully and accurately the degree, position, and relation of areas of infiltration and consolidation, and to delineate plainly the limits of these areas. A certain amount of practice and a preliminary knowledge of the fluoroscopic picture of a normal thorax are requisite for the successful use of the X-Ray.

METHOD OF EXAMINATION.

The best method of examination for diagnostic purposes is to have the patient seated in a chair without a back, with the Crooke's tube held between the scapulae and the fluoroscopic screen in front of the chest. A dark cloth now being placed over the tube, the patient's shoulders concentrate all the light upon the chest, and the whole outline of the thorax appears as a picture upon the screen in front of the patient. The fluoroscope is more valuable than the screen in determining the finer details of a given diseased area. It is generally conceded that the proper distance between the light and the patient is about one inch, meaning, ordinarily, a distance of twelve inches between the light and the screen. The light should be placed directly in line with the spinal column and between the spines of the scapulae. When

the fluoroscope is used it should be applied firmly, but evenly, to the bared chest, and the two clavicles having been located, their relative distinctness of outline will generally indicate the site which is involved. After examining the apices, the fluoroscope is passed up and down the whole thoracic region in search of other foci of infection.

THE NORMAL CHEST.

Slide No. 1. In about fifty per cent. of normal chests the right apex is not quite so clear as the left, the normal lung is more transparent, and the reflex is brighter at the end of inspiration. The ribs are more clearly defined during inspiration, and in a healthy chest an evenly clear transmission of light is visible between them. Slight shadows are cast by the deltoid muscle at the outer borders of the apices. The heart and portions of the aorta are distinguished as a dark shadow, extending from the first to the seventh interspace, and broader below than above. A small portion of the aorta is seen as a light shadow in the first interspace, slightly to the left of the sternum. The shadow of the heart is generally black, except on the right in the fourth and fifth interspaces, where the shadow cast is of less density; very often the cardiac impulse is distinctly visible; the apex of the heart appears to be invaginated during systole. The action of the diaphragm is well defined, and during the act of expiration it assumes a dome-like outline. In stout patients it is much more difficult to discern the outline of the ribs than in thinner subjects, and the effort required in diagnosis is relatively greater. The first slide represents the posterior view of a normal lung of a boy twelve years old. He had an old epiphyseal injury in the shoulder joint, resulting in the humerus being smaller and shorter, due to arrested development or atrophy. Slight lateral curvature of the spine is present. The apices and spaces between the ribs are clear and transparent.

THE DISEASED CHEST.

Slide 2. In very incipient cases of pulmonary tuberculosis, where the pathological condition consists of very slight infiltration, the picture thrown upon the fluoroscope is as follows: There is a haziness or fog between the light and the observer, or the clavicle may, in other instances, appear to have a gauzy veil thrown over it. Very often, when there is only a suspicion of abnormal physical signs at an apex, there may be present enough infiltration to give us, instead of the slight haziness or fog spoken of, a light shadow; the ribs become more indistinct, and, finally, the lower border of the light shadow shades off into a haze which gradually fades away into the normal reflex. At times, even in normal chests, there may be a slightly thickened pleura on each side, giving a hazy appearance or even a light shadow, and, again, as often with physical signs in incipient cases, we are at a loss to interpret the exact meaning of what we see. Allow the patient to take a deep inspiration, and if there is a slight tuberculous infiltration at one apex or the other, the haze or shadow on the unaffected side will become less apparent, while that on the diseased side remains the same. One writer on this subject has maintained that the haziness with an infiltrated apex may be simulated by emphysema, and that forced inspiration will cause the haze to disappear entirely. This, it will be seen, does not occur where the haziness is due to infiltration. Again, supposing we do see a shadow due to slightly thickened pleura at one apex instead of a haze of infiltration, when we remember that nearly all sharply defined spots of pleuritic thickening cover an underlying tuberculous condition, we again have strong presumptive evidence that we are dealing with incipient tuberculosis. As in inspection and auscultation in most cases of incipient disease, the signs are more apparent posteriorly than anteriorly.

We now come to a more accurate and almost inval-

able test, as far as my observation has gone, in diagnosing a very incipient tuberculous deposit in one lung, especially at the apex, namely, a more or less restricted action of the diaphragm. Being acquainted with the distance of the normal excursion of the diaphragm on both sides, it is very easy to recognize the least restricted movement of these muscles, and in every case of incipient tuberculosis, no matter how indefinite the signs may be at the apex, there is more or less restricted excursion of the diaphragm on that side. This slide does not clearly represent the incipient condition. The negative shows a haze at the left apex, which has been practically lost in the printing and preparation of the lantern slide.

CONSOLIDATION.

Slide 9. When there is marked consolidation, the transmitted light is relatively less, the edges of the clavicle are indistinct, or the bone may be invisible. The limits of the consolidated area are sharply defined and, ordinarily, are bordered by an area of haziness. When pathological changes are present at both apices it is an easy matter, by comparing the two sides, to decide upon which the disease has made the more progress. Comparative shadows at the apices are generally more clearly defined from behind than in front. The light is used at the same elevation, the patient is directed to keep his chin in line with the center of the tube, and to bring his shoulders well forward, thus separating widely the scapulae. Now, by placing the fluoroscope directly over the spinal column, the two apices are brought simultaneously into the field of vision, a result impossible to obtain in front without a screen. Right here let me say that it is very important not to remove the eyes from the instrument while sliding it over the chest, lest by so doing the fine points of comparison be lost by submitting the retina to a different character of light. The force of this remark will be appreciated when we re-

member that one has to gaze into the fluoroscope some length of time before the landmarks of the chest are seen. Ordinarily, by these simple methods a practised eye can clearly distinguish areas of the most incipient infiltration; sometimes before abnormal sounds are heard on auscultation or percussion, and very often before their presence has been suspected. Williams, of Boston, says that when examining a lung known to be diseased, he has found an unsuspected focus of infection at the opposite apex. I have found foci of disease in the lower portion of the lungs in a number of cases under treatment for apical disease. In some instances these spots cleared up; in others, auscultatory signs subsequently developed. If it is to be desired to be more accurate in defining the limits of the diseased areas, and in differentiating between consolidation and infiltration, a metal rod may be placed evenly against the chest-wall in front or behind and moved up and down with the fluoroscope until the outline becomes more distinct, which will indicate that the upper and lower borders of the diseased area have been reached. If pencil-marks now be placed along these borders, and percussion subsequently practised, the area of dullness will be found between these lines. In cases of complete dullness, say to the second interspace, with relatively less dullness for one or two interspaces below, a dark shadow will be seen over the first named region, that of consolidation, which will gradually fade off consecutively into haziness and normal reflex of light below, the area of haziness corresponding to the limits of relative dullness or infiltration. I regret not being able to show a case of typical consolidation at one apex presenting marked contrast between shadows and normal light reflexes. However, the shadow of consolidation will be shown in other slides, in connection with cavities. In this slide (No. 9) there is a small spot of consolidation marked with a cross (x) and surrounded by dots, between the third and

fourth ribs. This shadow was observed in a young girl with a tubercular history, but without any physical signs, in whom later a positive diagnosis of tuberculosis was made.

SOFTENING AND EXCAVATION.

Slide 7. As consolidation gives way to softening, flashes or spots of light come through the darkness, then we note a fairly well-defined area of light with dark spots scattered through, or dark lines or reticulæ across its face. This represents disintegrating tissue, and, finally, the dark spots or lines of debris disappear and then appears the bright reflex of a formed cavity. Cavities appear as more or less well-defined areas of brightness amid shadowy tissues; when perfectly round they appear like a full moon behind a cloud. Such small, regular-shaped cavities may be situated in a large area of dense shadow or merely surrounded by a ring of darkness, the limits of these shadows corresponding to the area of percussion-dullness. It is more difficult to map out or even diagnose positively large, irregular-shaped cavities, and very often one must have recourse to the steel rod as an aid, the shading off being too uncertain for the eye alone to determine the limits of the cavation. In cases of multiple cavities, the dense intervening fibrous tissue will be shown in the form of dark streaks winding between the spots of bright reflex. These streaks or bands differ in appearance from those seen in areas of softening, in that they throw a darker shadow and the light does not penetrate them in spots as it does the tissue undergoing disintegration, nor is their continuity broken. By means of the X-Rays I have discovered cavities which have escaped detection by auscultation and percussion.

In this slide (No. 7) you will note the dark shadows of consolidated lung, more marked on the side. Above, just under the spine of the scapula, you may see the bright reflex of a cavity. On the left side the scattered

shadows indicate just so many foci of consolidation. Also notice the position of the diaphragm, the excursion of which is restricted considerably more on the right side. The next slide (No. 4) shows a large cavity in the left upper lobe with consolidation on the right side. Notice the dome shape of the diaphragm arched over the liver on the right. This was taken with the patient holding his breath and keeping the mouth open so that there was no movement of the diaphragm.

PNEUMONIA.

Slide 5. The fluoroscopic picture in pneumonic consolidation will not differ from that of tuberculous origin. The X-Ray may be of use in determining the existence of doubtful pneumonia as well as defining the extent of the pathological process, hence influencing the prognosis to an appreciable degree. This might be of great importance after convalescence in determining the presence of unresolved pneumonic consolidations of small areas in central locations, which, unrecognized and without treatment, would lead to the development of tuberculosis. In the slide now before us (No. 5) the right side is uniformly opaque over the entire lung. The color is not as dark as if the lung were entirely consolidated, which fact enables us to eliminate that condition. There were slight changes in the auscultatory sounds, also slight cough, loss of weight, slight fever for three weeks. No tubercle bacilli were found. After six or seven months' residence in the west, fluoroscopic examination showed the lung clear and transparent and apparently normal.

The next slide (No. 10) shows collapse of the lung after pneumonia, possibly tubercular, as absorption did not take place for two years, fibrosis resulting. No tubercle bacilli were found in the sputum. The light strip on the right side is probably due to an enlarged bronchus. Notice the lateral curvature of the spine and the brighter than normal reflex on the left side, which is in the nature of compensation. With the exception of this deformity, the patient is in good health.

MILIARY TUBERCULOSIS.

Slide No. 3. Miliary tuberculosis shows itself in the form of scattered dark spots, giving the lung a mottled appearance; there is nothing regular about the arrangement or size of the spots; when cavation has occurred it is, as a rule relatively difficult to define the outlines of the cavities. In this case (No. 3) the physical signs were doubtful. The diagnosis made by X-Ray examination was confirmed at the autopsy. The small, dark spots scattered through the lungs are characteristic of miliary tuberculosis and enable one to make a diagnosis when physical signs are wanting.

PLEURISY.

Slide 6. Pleurisy with effusion presents one of the most interesting of X-Ray pictures. Beginning at the base of the pleural sac, we have a perfectly black shadow extending upwards to the level of the fluid. Above this line is a light shadow or heavy haze, due to the compression of the lower portion of the lung, which shadow fades away, first into a haze, and, finally, into the normal reflex in the upper portion of the lung. If the patient is shaken by the shoulders, the dark mass representing this fluid may be seen to be agitated like water in a glass; the sign is pathognomonic of fluid of some character in the chest cavity. If the amount of effusion be very great, thereby distending the pleural sac, and compressing the lung well up to its root, it may be somewhat difficult to elicit the movement of the surface of the fluid. However, with an evenly dark shadow from the base of the pleural sac, with a suspicion of movement at the upper line we may safely assume that fluid is present. There is a sign seen through the fluoroscope, which will prevent its presence; if the compressed lung, on forced inspiration, becomes brighter without a downward movement of the upper border of the dark shadow, it is proof positive that the shadow represents fluid and not con-

solidation. The heart will be seen to be displaced to the side opposite that on which the effusion is present.

Old pleuritic thickenings throw a shadow more intense than that shown by either consolidated lung tissue or the normal heart. The blackness of this shadow is as pronounced as that shown by the liver. This picture (slide No. 6) was taken two and a half weeks after beginning of the disease. The light reflex can be seen above the fluid shadow on the left side. When X-Rayed several months later, after resolution had taken place, the lung was transparent and unaffected.

EMPHYSEMA.

Slide 10. Emphysematous lungs are much brighter in appearance than those of normal condition; the volume being increased, there is a wider spacing between the shadows cast by the ribs. The excursions of the diaphragm are less than the normal standard. The concomitant cardiac enlargement is apparent, being especially marked on the right side. This condition is illustrated in a previous lantern slide (No. 10), in which it followed collapse of the right lung. The compensatory action on the left side is of the nature of emphysema.

ASTHMA.

During an attack of asthma the affected lung presents very much the appearance described as seen in emphysema; the diaphragm, however, is more restricted in movement, and at times simply flutters instead of moving, while on the healthy side its excursions are greater than normal. This difference between the diaphragmatic action on the two sides is characteristic, and once seen is not forgotten.

ANEURISM OF THE AORTA.

Slide 8. This presents a dark shadow that can often be seen to pulsate. The position of the shadow, the convex border, the movement of pulsation, together with the increase in area of the shadow as the aneurism be-

comes larger make the diagnosis certain. The X-Rays have shown that an aneurism of fair size may exist without giving any physical signs, and that such aneurisms can be definitely outlined and diagnosed only with the fluoroscope. Frequently, it is necessary to differentiate between aneurism of the arch and incipient tuberculous condition.

Displacement, dilatation, or hypertrophy of the heart can be diagnosed, and the position and extent of the enlargement accurately determined. This slide (No. 8) presents an aneurism of the arch of the aorta. It simulated tuberculosis in that it caused the typical cough. The following slide (No. 11) shows not only an aneurism of the aorta but general dilatation of the heart. This condition was discovered in a hard working man about two and a half months ago. Two weeks after illness was noticed, the radiograph was made. He was still living two months later.

SUMMARY OF THE DIAGNOSTIC SIGNS.

1. Slight haziness indicates the beginning of tuberculous infiltration, and may or may not be accompanied by dullness.
2. Decided shadows indicate consolidation, the extent of which is in direct relation to the comparative density of the shadow thrown on the fluoroscope.
3. Circumscribed spots of bright reflex surrounded by narrow, dark shadow-rings, or located in the midst of an area of dense shadow, indicate cavities.
4. Intense darkness, especially at the lower portion of the lung, indicates old pleuritic thickenings over consolidated lung tissue.
5. Pleural effusions are shown in dark shadow, the upper level of which may be agitated by succussion.
6. There is no reason to doubt that the effusion of pericarditis would throw a like shadow which would be distinguishable from the heart-shadow above by its greater blackness.

7. Shadows thrown in the first and third stages of pneumonia probably resemble those of tuberculous infiltration. The shadow of the second stage of pneumonia is identical with that of tuberculous consolidation.

8. In emphysema and asthma the reflex is abnormally clear, and the movement of the diaphragm is restricted on the affected side.

A great deal depends upon the intensity and steadiness of light and the amount of muscular and adipose tissue intervening between it and the fluoroscope.

As a therapeutical agent, the X-Rays are still on the threshold of investigation. It is true that in certain forms of tuberculosis and in foreign growths, their usefulness has been proven, but I use the word "threshold" advisedly, because it seems that we hardly yet dream of the future in this line of treatment. Their usefulness has been well proven in cases of lupus, epithelioma, and sarcoma, external growths healing rapidly and surely. Almost since the beginning of the use of the X-Rays as a diagnostic agent, there has been an effort on the part of many legitimate and illegitimate operators to use them as a therapeutical agent in the treatment of pulmonary tuberculosis. The field, open to unreliable persons, was such an attractive one as to make the profession look with suspicion upon most reports of successful treatment. However, there have been a sufficient number of reliable men investigating the subject to furnish some few facts pointing toward probable success. That both the Finsen and X-Ray lights have a beneficial effect upon cases of tuberculosis accompanied by infection and septic temperature, as well as upon cases of empyema, is now a well-known fact. Apparently old fibroid cases with mixed infection, accompanied by a large number of pus cocci and septic fever, are benefited in three ways: (1) expectoration is decreased; (2) pus cocci become much less numerous and temperature is proportionately reduced; and (3) areas of

further softening in the region of cavities, for instance, seem to show a great tendency toward assuming fibroid conditions, thus walling off diseased areas.

The following case will illustrate the supposed action of the X-Rays in cases of phthisis in the third stage:

The patient was a male of forty years of age, with extensive areas of tuberculous consolidation and softening in the upper portion of both lungs. A large cavity was present on the left side, and below, extending to the lower border of the upper lobe, was an area in which softening was rapidly progressing. On the right side there was a similar condition existent in both the upper and middle lobes, except that the cavity was smaller. A fatal prognosis had been given, and the patient told to go home and give up treatment. At his own request (he being a physician), the X-Ray was applied four months, with the following results: The evening temperature fell from 103° to 100°, expectoration decreased about sixty per cent., the number of pus cocci were markedly decreased, and the sputum became more mucoid in character. No diminishing of the tubercle bacilli occurred; on the contrary, they seemed more prominent in the microscopic field, thus bearing out the statement heretofore made that the first effect of the X-Ray upon tubercle bacilli is to promote overgrowth. The patient's weight increased one or two pounds and then remained stationary. The cavity on the left side became somewhat smaller and the area of softening below it was replaced by comparatively dense fibroid tissue. The small cavity on the right was partially obliterated, and a portion of the softened area disappeared entirely while that remaining was replaced by fibroid tissue. An interesting clinical feature in this case was that, proportionately with the increase of fibrosis, dyspnoea increased. The patient was finally sent to Arizona to spend the winter months, and the partial arrestment of the disease has continued. This case is quoted only as an

interesting one, with the statement that one case does not make history.

As evidence of the germicidal action of the light rays, the writer recalls a case of empyema in which there was resection of eight ribs resulting in a permanent fistula. The patient wore a silver tube fitted with a valve to prevent ingress of air after compression had arrested the activity of the tuberculous process in the lung. The discharge from the fistula contained tubercle bacilli and pus cells. He was exposed daily for fifteen minutes to the direct rays of an arc light with the result that, at the end of two months, the bacilli had disappeared from the discharge. This treatment was continued for six months, during which time no bacilli were found either in the sputum or the discharge, but two months thereafter microscopic examination revealed a few bacilli in the discharge.

In a number of cases of infiltration and slight consolidation the reparative process seems to have been materially hastened. It cannot be stated whether such apparently beneficial results are due to a specific action of the rays upon the catarrhal condition, as has been noted in cases of pulmonic cavities and empyema, or whether its action is similar to that of the thermo-cautery so well-known to all practitioners. Some investigators believe that the most beneficial results are attained only after a certain amount of dermatitis has been produced over the diseased area. That the action of the X-Rays on infiltration is due not to a dermatitis, but to some unknown specific action of light, seems to be indicated by the results noted in one of the writer's cases in which the pulmonary disease was thoroughly arrested and tubercular laryngitis had assumed a chronic form which resisted all local treatment for many months, remaining, in spite of the most careful attention, *in statu quo*. The application of the X-Rays for about two months was followed by complete disappearance of all objective

symptoms and pathological conditions without even reddening of the external surface. The use of the X-Ray in tuberculous conditions of the pharynx and tonsils meets like conditions and is governed by the same rules that apply to the treatment of lupus. X-Ray exposure also relieves, although not as markedly as the Finsen light, pleuritic pains over tubercular areas.

In conclusion, while the value of the X-Rays as a diagnostic agent in pulmonary diseases is now, and has been for some years past, beyond dispute, the same cannot be said of their use as a therapeutical agent. Great possibilities in this direction seem to be open to the profession, but before they can be recommended outside, certain sharply defined restrictions, as to the class of cases treated, the requisite knowledge and experience of the operator, as well as careful scientific research and experimentation must be made for many months.

SEBORRHEA.

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BRIDGEPORT.

Synonyms, Stearrhea, Seborrhagia, Acne Sebacea, Pityriasis, Eczema Seborrhoicum (Unna), Ichthyosis Sebacea, (Fr.) Acné Sébacée.

Mr. President and gentlemen of the Fairfield County Medical Association.—In selecting this subject I wish to bring before your minds one of the more common diseases of the skin, the neglect of which, produces early and permanent baldness, and often disfiguring lesions upon the face and body. It is a disease frequently overlooked, and many times taken but little notice of by the busy general practitioner.

I shall present the symptoms and conditions in a general way, trying to give some idea of its appearance, finally citing one or two cases of interesting conditions.

The definition of Seborrhea given by Crocker of London, (third edition, 1903) is as follows: "a disorder of the fat glands producing increase and alteration of the secretion, which forms an oily, waxy, or scaly accumulation on the surface."

Symptoms. The distribution of the disease may be general or local, and in one or more of its forms, is a common condition, especially upon the scalp, forehead, nose, over the sternum, the inter-scapular region, the pubes, and inguinal regions.

Of the various forms of the disease, first Seborrhea oleosa, of a non-inflammatory nature, is common at puberty and onwards, varying greatly in degree, the skin looks and feels greasy, the surface being covered with an oily secretion. It is seen commonly on the forehead,

nose and cheeks, the complexion being thick and muddy, and, due to the above condition, dirt and dust readily adhere, making the skin always look dirty, with *Acne Vulgaris* as a complication. The nose especially has the venous congestion, with its attending deep red color, the follicular openings very prominent, filled with soft fatty, easily expressed plugs, or covered with fine dirty scales. On the scalp it is very common, but little noticed, except in bald persons, then the secretion gives an extra polished look to the surface.

Unna claims "this secretion is derived from the sweat glands, and not from the sebaceous glands, and that this is the only affection entitled to the name of *Seborrhea*."

Seborrhea sicca, generally includes the waxy and scaling forms. They are both very common, and to them can be traced many cases of premature baldness.

The waxy form. In the new born, *vernix caseosa*, and during the first year of life, the secretions are very abundant, and from infrequent washings, accumulate on the scalp, especially the vertex, forming thick dirty-yellow scales; when cleaned off the skin beneath is pale, but looks healthy, unless irritated by the decomposing fat; then we have the starting focus of the *Infantile Eczema* of the scalp and face so frequently seen.

At puberty and onwards it is most commonly seen upon the scalp, where it forms crusts or scales of fat and epithelium, dirty, yellowish, or brown in color. These scales collect about the hair follicle, and on removal leave a depression about the hair, which condition is of a serious nature, causing atrophy of the hair and leading to early and permanent baldness, no attention being paid to the slight scaly condition of the scalp, until led to seek advice for the baldness, or falling hair.

The more severe cases seek advice for the scaly exudate found upon the scalp, often extending down into the eyebrows causing them to fall out, leaving the skin scaly and somewhat reddened. The patients usually

complain too, of the oily or greasy condition of the hair.

The more scaly form *Seborrhea furfuracea*, or *Dandruff*, is considered by some writers as a separate disease, and often called *Pityriasis Simplex*. Here we find the patient always troubled with fine white shining scales in the hair, which brush or fall out onto the clothes, causing great annoyance from the untidy appearance. On examining the scalp, we find it covered with these loosened shining scales, more or less greasy to the feel, the skin beneath is pale, showing the same depressions about the hair follicles, (as above mentioned), leading to the atrophy of the hair, and its accompanying baldness. This above condition is the common scurf or dandruff familiar to all.

The scalp beneath the scales has a burning, or itching, especially when the patient is heated from exercise, or sitting before the fire, or by the reading lamp. A similar condition is found in the beard, but not so commonly or extensive as in the scalp.

The above described conditions have shown practically no inflammatory condition of the skin. We look now at a *Seborrheic Dermatitis*, a condition due to *Seborrhea* previously described, but gone on to a more advanced stage. We have the scaling, but beneath that the skin is thickened, and indurated, or simply a deep redness, resembling *eczema* in many of its varied forms, but there is the absence of the intense itching, and *eczematous* secretion. It is of a dry, or greasy feel, with the white shining scales, not very adherent. Its location is upon the forehead, chest, axillae, interscapular region, and between the thighs. Patients complain of this especially upon perspiring freely, causing an itching, burning sensation, very disagreeable and irritating.

As we come to the etiology of the disease, it is very common at puberty, more so in women than in men. As a rule *Seborrhea oleosa* is found more among those of dark complexion, and *Seborrhea sicca* associated with

fair complexion. Often there is some defect in the patient's general health, as anemia, tuberculosis, syphilis, a strong predisposing disease in both sexes, often after some acute fever, as Typhoid or the Exanthemata. It frequently occurs in women after the menopause, without any attending uterine disorder; again some reports, point to free perspiration as a cause.

Finally a large number of cases with apparently no cause to account for the condition, the patients being in the best of health and strength.

Pathology. Hebra always said that Seborrhea was due to "an exaltation of the natural functions of the sebaceous glands, that the difference in consistence depended mainly on the idiosyncrasy of the individual, on the admixture of scales from the more or less free exfoliation of the cells of the hair follicles and epidermis, and from imperfect fatty metamorphosis of the lining cells of the sebaceous glands." This explanation was denied by Unna in 1894. He claimed "the most important role as lubricators of the skin for the oil glands, the secretion being oleic acid, while that of the sebaceous glands was chiefly stearic acid." Seborrhea oleosa is a condition of excessive secretion, and the firmer kinds have an inflammatory origin, while the clinical signs of inflammation are wanting. Piffard and Van Harlingen state that scales of Seborrhea sicca are produced, not from the sebaceous glands but from the horny epidermis.

While it is not disputed that the microscope reveals signs of inflammation, clinically there is no evidence of it, and after the removal of the scales the skin looks quite normal.

There are some indications that it is of a contagious nature, for Lassar and Bishop made a pomade of the scales, and produced baldness on the back of a Guinea-pig, by freely applying the pomade to the pig's back.

Unna has found a "morrococcus" to which he attributes all cases. Sabourard regards the micro-bacillus

as the cause of true Seborrhea, while various forms of inflammation are excited by the addition of other microbes. Hyde of Chicago, says that Unna's morrococcus has not been established, and his opinion is corroborated by Dade of New York. Crocker of London, says "the controversy still goes on, and it is for the future to show which is correct."

Diagnosis. Seborrhea sicca is most like eczema, but on the removal of the scales the skin is dry and white, while with eczema moist and red, the itching is not so intense. On the face Seborrhea looks very much like a slight eczema, but its marked dryness, and the scales of a greasy nature, indicate Seborrhea.

Lupus Erythematosus occurs more on the face, it has its characteristic look, scales more adherent, it heals from the center, leaving smooth white scars. The outline of lupus is very distinct, in comparison to Seborrhea.

Psoriasis may resemble Seborrhea sicca, but it occurs more in patches, scales more shining, and heaped up, with probable characteristic patches elsewhere on the body.

Prognosis. In the young it is good, but when of long duration it is obstinate, and perhaps incurable, yet temporary relief is obtained, and kept under permanent control, by constant treatment. On the scalp even in the young if of long duration it is almost always fatal to the hair. With fresh cases there is great hope for success.

Treatment. Plenty of fresh air, and out-door exercise to tone up the general physical condition, also remedies as Iron, Cod-liver oil, arsenic, etc., which would suit each individual case.

Locally. In children, the scales should first be softened, by soaking in sweet oil, then carefully washed off with soap and water, then apply some mild ointment such as oxide of Zinc, which will usually be all that is necessary.

With older cases the same process of removing the scales, then apply a Sulphur ointment using varying strengths according to the case, usually about one dram to the ounce. The scalp is to be washed thoroughly about every second day, but the ointment immediately reapplied. This to be followed for several weeks, gradually lessening the number of applications, until cured, or under control. Resorcin, is another which with some, has given excellent results, used in spirit lotion of two-tenths per cent. strength; in an ointment form of greater strength. The same process of washing, and keeping the ointment decided upon, constantly applied.

Seborrhea oleosa is best treated by lotions as the following:

R. Zn. Sulph., Potass. Sulphuret, of each one dram,
Aq. Rosae four ounces.

I have two cases only I wish to mention. Case A. seen in my service at the Vanderbilt Clinic. Man about sixty years of age, had always suffered more or less with dandruff. The hair was thin, and white, the scalp, forehead, ears, bearded portion of the face, completely covered with the shining, loosened, greasy scales of Seborrhea. Over the sternum and inter-scapular region, the same condition, beneath the scales the skin especially on the chest and back was reddened, showing some inflammatory action. In this case we have both Seborrhea sicca, and Dermatitis Seborrhea, the later due to the first. Treatment consisted of thorough removal of the scales by washing, and then the thorough application of the Sulph. ointment U. S. P. Improvement was rapid, and up to the present time remains under control by occasional applications of the Sulphur.

Case B. Patient in my own practice. Man fifty years of age, general health excellent. Had been troubled somewhat during his life with dandruff. Several years ago a very similar, but not so extensive an attack as at present. The present trouble began in September, 1902,

reaching its highest point of development in a few weeks. I saw him first about February first, 1903. At that time, the scalp over the vertex and the skin of the forehead was thickened and indurated, a dark red color, and if left alone, would be covered with fine dry scales. No soreness and not much itching, but very disfiguring. At the nape of the neck just in the edge of the hair another patch of the same character, size of a silver dollar.

Treatment. Ung. Sulph., U. S. P., for three weeks. Then Ung. Sulph. c., 20 per cent. Salicylic acid. Marked improvement with the latter application, so that at present the thickening is practically gone, and the redness and scaling very much less. I expect nothing less than a cure.

My mentor and instructor, Dr. Dade of New York, says in treatment of Seborrhea you need never use anything but Sulphur.

THE TREATMENT OF ACUTE OPIUM POISONING.

JOHN SLADE ELY, M. D.

NEW HAVEN.

No thoroughly satisfactory rational method of treatment of poisoning of any sort can be formulated without very considerable knowledge of the physiological action of the poison, of the manner in which it kills, of its mode of elimination from the body and of the mechanisms employed by the body in combating its effects. Until such knowledge is available we must be content with treatment based upon some accepted theory of the mode of action of the poison, or with the employment of such measures as experience has shown to be helpful. It is not strange that such theoretical and empirical methods should need frequent revision and correction to bring them into accord with advancing knowledge of the action of the poison.

Opium is preëminently a poison of this sort. Though its medicinal use is of great antiquity and records of poisoning by it are very numerous, accurate knowledge of its physiological action and of the manner in which it kills are of recent date. The treatment of opium poisoning has consequently been wholly empirical, and we are to-day employing methods which are founded on antiquated notions of the action of the poison and are in so far obsolete and irrational. For this reason it has occurred to me that a brief statement of our present knowledge of the action of opium in acute poisoning might be of interest, especially if therefrom we might gain suggestion as to a rational method of treatment of such cases.

Two questions seem to me to be of paramount importance in connection with every poison:—

1. How does it kill ?

2. How is it disposed of by the body in cases in which a fatal termination is averted ?

What answer can be made to these questions in the case of opium ? And, first, how does opium kill ?

In the early days the rapid development and prominence of coma as a symptom, coupled with the belief that continuance of the cerebral functions was indispensable to life, led to the theory that suppression of the cerebral activities was the primary cause of death in acute opium poisoning. This view received support, also, from the fact that failure of respiration and of the heart were observed to occur subsequently to the cerebral paralysis, and because recovery frequently took place in cases of poisoning in which narcosis was not profound. It was believed that by prevention of the coma the subsequent failure of respiration and of the heart might be averted. I may say here that the strenuous and often violent efforts which are still sometimes made to keep the patient awake in opium poisoning are a survival of this theory. But with increased knowledge of the functions of the cerebrum and better understanding of the physiology of respiration and of the heart our notion on this point has undergone material change. The cerebrum has been forced from its commanding position as a vital organ, and it is now the general opinion that there is no closer relationship between the coma and the respiratory and cardiac failure in acute opium poisoning than that which is necessarily implied in a community of cause. We believe that the coma of opium poisoning has no destructive effect *per se*,—that the failure of respiration which follows it is not its result, but a concomitant expression of the action of the poison on the respiratory centre in the medulla oblongata. Though the primary depressant effect of opium in man would appear to be exerted on the cerebrum, in this action there is no direct menace to life.

It is only when its action extends to the respiratory centre that life is threatened.

It has long been known that the action of opium on the heart, even when administered in large doses, is insignificant. That it exerts no depressant action has been shown most conclusively by experiments by Sophie Frenkel,¹ made in 1890, under Sahli's guidance. These experiments demonstrated that after small doses of morphine and even after doses sufficient to produce deep sleep and considerable slowing of the respiration there was no material alteration in the pulse rate, no weakening of the heart action, but on the contrary slight increase in blood-pressure as measured by the Von Basch sphygmomanometer. There was, then, stimulation of the heart rather than depression. The correctness of this view is also indicated by the behavior of the heart in severe and fatal cases of opium poisoning. Here it has been repeatedly observed that the heart has continued to beat regularly and with good force even up to the time of complete cessation of respiration and has seemed ultimately to fail only in consequence of the respiratory failure. This was most strikingly shown in a case of my own of profound opium poisoning which ended in recovery. For more than six hours in this case after complete cessation of spontaneous respiration and during continuance of artificial respiration the heart continued to beat with good strength. Whenever the artificial respiration was stopped the heart failed and on several occasions the patient became almost pulseless at the wrist, but with resumption of the artificial respiration the regular strong beat of the heart returned in each instance. There are now many similar cases on record in which artificial respiration has supported the action of the heart and in which a similar dependence of the heart action upon the respiration has been noted.

So far as the action of opium on the other organs of the body is concerned, it must be insignificant in bring-

ing about a fatal termination in cases of acute poisoning.

We may, then, consider it as clearly established that in acute opium poisoning death is the result primarily of paralysis of respiration. In a considerable number of cases of profound opium poisoning in which artificial respiration has been the only treatment recovery has resulted.

Our second question is as to the fate of opium and of its alkaloids in the body, and we may first enquire as to its mode of elimination.

Until 1875 it was supposed that the bulk of the morphine present in the body in opium poisoning was excreted by the kidneys. Seven years earlier, to be sure, it had been suggested ²that a portion might leave the body in the feces, but until Vogt ³ demonstrated the presence of morphine in the stools of a morphine habitué in 1875, there had been no proof of the correctness of this view. This observation was speedily confirmed by Jacques,⁴ Landsberg,⁵ Eliassow,⁶ Burkart,⁷ and Mame,⁸ and it was further shown that morphine could be detected in the stomach and intestinal contents even after hypodermatic administration. Since then it has been demonstrated that in morphine poisoning the alkaloid is rapidly secreted by the stomach and intestinal mucous membrane, the experiments of Leineweber,⁹ Alt,¹⁰ Tauber,¹¹ and Faust,¹² leaving no doubt on this subject. In 1890 I myself repeatedly detected morphine in the stomach washings of rabbits and dogs to whom it had been administered hypodermatically. That a large part of the morphine in the body is excreted in this way is shown by the quantitative estimations made by Tauber ¹¹ and by Faust. The first recovered from the contents of the gastro-intestinal tract 41.3 per cent. of the morphine injected hypodermatically in dogs, the latter recovered 70.9 per cent. in one case and 62.21 per cent. in another. Faust therefore concludes that in all probability at least three-fifths of the morphine in the body is excreted by the alimentary

mucous membrane. The experiments of Alt further show that this process of excretion, in the case of the stomach at least, begins very soon after administration of the alkaloid, for he began to recover it from the stomach two and a half minutes after hypodermatic administration in dogs. The excretion continued actively for a half hour, more slowly for a second half hour, when it apparently ceased. The same result followed the administration of small and large doses to dogs and was further observed in experiments with three men, each of whom received three centigrams of morphine. It would seem, then, that the gastric mucous membrane is an active excretor of morphine, that the excretion begins almost immediately and when the stomach is repeatedly washed ceases in about an hour, presumably because in that time most of the morphine in the body has been eliminated.

But it is also probable that if not removed by lavage the morphine at first excreted by the stomach may be reabsorbed, with resultant continuance of the toxic action. Vomiting in dogs is a very constant symptom of morphine poisoning. This is believed by Alt to be a result of accumulation of the drug in the stomach, for he found that even after very large toxic doses of the alkaloid this symptom failed to develop and the animals made good recovery if only the stomach was repeatedly washed. An instance, this, of removal of a symptom very common in morphine poisoning and of recovery from fatal doses as the result of persistent removal of that portion of the poison which is excreted by the gastric mucous membrane. It is interesting, also, to note in this connection that the action of the stomach induced by morphine is something more than a process of simple elimination, for Riegel¹³ has recently shown that there is a decidedly increased general secretory activity after morphine injections, both the quantity of gastric juice and the amount of its contained hydrochloric acid being increas-

ed and the period of secretion much prolonged. Whatever the interpretation of this process, its effect must be admitted to be conservative, for the increased quantity of gastric contents would tend to dilute any poison contained in the stomach and the increased acidity of the chyme poured into the duodenum would probably increase peristalsis and so contribute to more rapid emptying of the intestine.

Aside from the fact that morphine is also contained in small amount in the saliva¹⁴ in cases of morphine poisoning we know little more with regard to its excretion than has already been given. Recent studies¹⁵ of the part played by the kidneys in its elimination seem to show that little or no morphine leaves the body through that channel. That in acute poisoning a certain amount of the alkaloid undergoes oxidation in the body to more or less innocuous substances and is thus destroyed in the tissues is exceedingly probable. According to experiments of Faust¹² this consumption of morphine is a very important feature of chronic morphinism and would appear to be at the bottom of the extraordinary tolerance to the poison characteristic of such cases. The role played by this process in acute poisoning is, however, as yet uncertain, and we may pass it with brief mention as a probable means of disposal of a portion of the alkaloid.

If asked, then, to epitomize our present knowledge as to the fate of morphine in the body in acute poisoning one might say that the bulk of the alkaloid is eliminated as such by the alimentary tract and notably by the stomach, and that a portion in all probability undergoes oxidation in the tissues to innocuous substances, some of which are perhaps excreted by the kidneys, but that the kidneys eliminate little or no morphine as such.

With these facts before us, let us now pass to consideration of the treatment appropriate in cases of acute poisoning by opium or by its alkaloids.

Rational treatment of poisoning of any sort resolves

itself into antagonism of the lethal action of the poison and obtaining of speedy elimination of the poison from the body. What are the means at our disposal in acute opium poisoning for the accomplishment of these ends ?

We have found that death by opium is due primarily to paralysis of respiration. This, then, is the action which must be antagonized. If the patient's life is to be saved respiration must be sustained.

Of all the means available for this purpose artificial respiration is, I think, the best. In Sylvester's method we have a means of supplying the lungs with a quantity of air quite adequate to sustain life for many hours. If properly practiced the necessary manipulation is not particularly exhausting to the patient and, with the help of relays of assistants it may be continued for a long time without undue fatigue on the part of the operators. Thus, Cheatham¹⁶ reports a case of basilar meningitis in a child of eight years in whom, respiration having suddenly stopped, artificial respiration was kept up by this method for eleven hours and forty minutes, the heart continuing to beat regularly all that time. As there had been no effort of the child to breathe and since the case was thought hopeless because of the nature of the disease, the artificial respiration was then stopped and the child died. The conditions here were, of course, very different from those which exist in acute opium poisoning, but we may properly infer almost unlimited possibilities from this treatment in that condition if a child, weakened by such exhausting disease as basilar meningitis could be kept alive for more than eleven hours by its means. Of course, when oxygen is available it may advantageously be employed as an aid in the treatment.

It is my opinion that this is the only means necessary to sustain the respiration in opium poisoning. Cases are constantly increasing in the literature in which it

has been the only treatment employed and which have ended in recovery.

But, we may enquire, is there no physiological antidote to morphine which may be employed to counteract its depressant action on the respiratory centre?

The mydriatic action of atropine, together with its general stimulant effect on the cerebrum and on respiration early led to the notion that it was a true physiological antidote to morphine. And because mydriasis could be produced in narcotized animals and in men profoundly under the influence of opium by the administration of comparatively small doses of atropine, the latter was supposed to have a much more powerful effect than morphine and it was hoped that it might prove to be of use as a physiological antagonist of morphine. Accordingly atropine was widely and freely employed in cases of acute opium poisoning, the rule being that its use should be persisted in until dilatation of the pupil and acceleration of respiration were observed. But the results of this method of treatment were disappointing to say the least. Many patients died, notwithstanding the most radical atropine treatment. Subsequent study of the physiological action of atropine has explained the unfortunate ending in many of these cases and has shown the antagonism between atropine and morphine to be in large measure delusive. Thus, while the myosis characteristic of morphine is due to action of the alkaloid upon the centre in the brain the mydriasis of atropine is of peripheral origin, the result of paralysis of the motor fibres to the iris. It has also been shown that while the initial action of atropine is certainly stimulant to the cerebrum and to the respiratory centre this action is very speedily followed by depression of these centres and of the heart, death in cases of atropine poisoning being due to paralysis of respiration and of the heart. And, finally, in view of the fact that so much morphine is excreted by the gastric mucous membrane in opium poison-

ing the well-known tendency of atropine to suppress secretion should not be overlooked. The best opinion at present consequently deprecates the use of more than small therapeutic doses of atropine in opium poisoning. Bashford,¹⁷ whose study of this subject is very thorough and quite recent, expresses it as his opinion that a single small dose of atropine is permissible to lighten the effects of opium, but that this should not be repeated. "I consider it proper," he says, "to administer a single dose of 1.5 milligram and under no circumstances to repeat this." My own opinion is that atropine is a wholly unnecessary and dangerous remedy in opium poisoning.

Caffeine and strychnine, drugs which are powerful stimulants to the central nervous system and are devoid of the secondary depressant effect of atropine, may occasionally be of advantage. But I would like here to say a word of caution in regard to the use of powerful drugs when the body is already struggling to overcome the depressant effect of a poison, just because of some supposed physiological antagonism. Such physiological antagonisms are for the most part very incomplete, as in the case of atropine and morphine, and it is a grave question in my mind whether the administration of a counter poison may not be merely adding a new burden to the body: It is more than likely that the new poison will upset protective and eliminative mechanisms already instituted and in this way hinder the natural process of repair. The suppression of gastric secretion by atropine is a case in point.

In mentioning atropine, caffeine and strychnine I have cited all the physiological antidotes to morphine which have had wide use. Alcohol, digitalin, chloral, veratrum viride and jaborandi have also been advocated but without good reason and they have found no general adoption by the profession.

Let us now pass to the second of our questions with regard to the treatment of acute opium poisoning and en-

quire as to the means at our disposal to hasten removal of the poison from the body. As no chemical antidote to morphine is known whose action may be relied upon in the blood and tissues of the body our efforts in this direction must be devoted to the immediate removal or destruction of any poison which may remain unabsorbed in the stomach, to facilitating excretion of the poison which may have been absorbed and to the removal of such poison as may be excreted from any possibility of reabsorption. As excretion of the poison from the body is so largely accomplished by the stomach mucosa, we may properly consider the first and third of these questions together.

There is no doubt in my mind that the speediest and best way to empty the stomach in opium poisoning is by means of the stomach tube and generous lavage. Most emetics are slow or fail to act in conditions of deep opium narcosis, and although apomorphine is an exception to this rule, emesis during profound coma is always a menace because of the danger of aspiration of the vomitus into the respiratory passages. On the other hand the deep unconsciousness and complete relaxation of opium narcosis facilitate the passage of the tube, and after it is down artificial respiration may be continued without interruption during the washing. There need be no gagging, no vomiting around the tube and no entrance of vomitus into the air passages.

While I believe that efficient removal of any morphine in the stomach may be accomplished by washing with water alone, there would seem to be no objection to combining with this any efficient chemical antidote which may be available provided only that its action does not tend to interfere with gastric secretion. So far as I am aware only one such antidote is at our disposal. This is potassium permanganate, suggested by Moor¹⁸ of New York in 1894. This it will be remembered is a powerful oxidizing agent, and it is supposed to render the mor-

phine innocuous by oxidizing it to oxydimorphine. Moor¹⁹ and Luff²⁰ have demonstrated a remarkable selective affinity of the permanganate for morphine which leads to complete oxidation of the morphine even in the presence of food in the stomach, and it is alleged that the permanganate need only be administered grain for grain of the morphine present. Indeed, so notable is this selection of morphine by potassium permanganate that it has been thought that the antidote might be available to neutralize morphine already in the blood and tissues and its hypodermatic employment has been advocated for this purpose. Though cases have recovered after treatment in this way I cannot believe that the favorable termination can have been materially influenced by the injection of a substance whose oxygen is so readily yielded to the hemoglobin of the blood. It is, however, my opinion that the administration of potassium permanganate by mouth, or, better, the washing of the stomach with a dilute Condy's fluid may serve a most useful purpose in opium poisoning. But, whichever of these measures is employed it is of vital importance that it should be repeated frequently and at short intervals for at least an hour to remove the poison which is being excreted by the gastric mucosa.

So far as means of facilitating excretion of the morphine already in the body are concerned it must be admitted that our knowledge is most meagre. Diuretics must be useless and all that we can say at present is that stimulants of gastro-intestinal secretion would seem to be indicated. Strychnine may perhaps be useful for this purpose. However this may be, there can be no question as to the fallacy of administering remedies of any sort having even remote tendency to suppress gastro-intestinal activities, whether secretory or motor, and I would again urge this as a contra-indication to the use of atropine. Theoretically it would seem that stimulant purgatives should be of value. They are, however, at

best of comparatively slow action, and this is especially the case in the narcosis of opium poisoning. But irrigation of the colon may be practiced and should serve to facilitate ultimate removal of the poison by the bowel.

Finally, I would urge the conservation of the patient's strength as of the greatest importance in opium poisoning. With this view there should be avoidance of every unnecessary measure tending to exhaust him and diminish his vital power. For this reason the practice of walking the patient up and down the room, flagellations and the many other means so frequently employed to keep him awake should be abandoned.

In discussing Dr. Ely's paper Dr. Carmalt said:

This paper of Dr. Ely's has been very suggestive: it has always been thought that washing in opium poisoning was not good work. I would like to give an account of a case in New Haven. The man was not only comatose, he was blue, when brought into the police station and reported dead. I was sent for. I found he had a fairly good pulse. I introduced artificial respiration for six hours. We had relays of orderlies and students to help. He made no attempt to respire for nearly six hours. Pulse kept good for the whole time and I thought we were justified in keeping up the proceeding, which was the same as Dr. Ely mentions. I am satisfied it is a good practice.

With regard to the elimination of the presence of morphine in the stomach by hypodermic injection, I would like to ask the Doctor how it is that we use atropine with such good results in hypodermic injections of morphine, and in connection with morphine to control the vomiting from ether, but if we use it fifteen or twenty minutes before the administration of the ether, the vomiting is less with the atropine.

Dr. Pratt: I knew the amount of morphine which was taken in a case in which artificial respiration saved

the life of the patient. He took one dram of morphine. I arrived at his house at nearly 11:30. He had not vomited before I came there. I did not know what the trouble was and I sent for a stomach pump. He was blue. Artificial respiration started a little after 11:30 and was kept up a little over eight hours and, during that time, he made three or four efforts at respiration. About four o'clock in the afternoon he was given a very little atropine hypodermically. I did not dare to stop respiration and wash the stomach, but kept it up a little over eight hours. The man must have eliminated nearly the whole of the morphine. The stomach was not washed.

Dr. Wolff: The paper of Dr. Ely is an extremely important paper. It tends to modify our views as regards treatment of opium poisoning and to make plain the methods of treatment in those cases which are always cases of emergency and cases of considerable difficulty.

During the year of 1892, I was engaged in a murder case in New York City in which the matter of the poisoning of morphine came up.

It has remained for New Haven to furnish us with a very instructive case. A young man, a student in New Haven, took twelve grains, and one hundred grains of chloral on the cars at Springfield and recorded his sensations from Springfield to Hartford. He went to one of the hotels of the city and in an hour or so became unconscious. Shortly after my arrival, I think Dr. Thompson came. We worked about four and one-half hours, using artificial respiration. He recovered at about eight o'clock that evening and came home completely recovered. The elimination of poisons by the alimentary tract, of course, is a well known fact. It is one of the well known facts that, where the atropine is applied to the skin or given hypodermically or introduced into the cavities of the body, the atropine is eliminated rapidly and almost always in great quantities, so that the

alimentary tract would, in cases of this kind, have a very very powerful separating capacity. The paper is an extremely suggestive one and the practice will receive wide attention.

Dr. L. C. Ager, of Brooklyn, said: I would like to ask the Doctor regarding the action of atropine, not as an emetic, but simply to stimulate respiration.

The other question I would like to ask is whether the poison has been worked out, as to when the absorption ceased and when the secretions began, or whether the two processes go on at the same time.

Dr. Ely replied: These questions are a little difficult to answer. I will speak with regard to Dr. Carmalt's question at least. My impression is that the reason why atropine allays the vomiting when ether is given is probably because it depresses respiration and in consequence the reflex vomiting resultant from ether narcosis. I cited vomiting as an almost constant symptom in opium poisoning in dogs, but not in men. I had something in my paper in regard to the value of strychnine in those cases as increasing the secretions as well as stimulating the nervous system as a whole. I might add there were some other things I hoped to say. One is this, I would like to impress upon you all the great desirability of conserving the strength of the patient. I believe that almost every one of the cases of morphine poisoning occurring in persons of good constitution can be cured, unless prevented by diseased kidneys, if the strength of the patient can only be conserved. I would inveigh against the old system of walking the patients up and down quite as strongly as I would against the ill-judged use of atropine in morphine poisoning.

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A DISCUSSION OF THE ETIOLOGY AND MODERN TREATMENT OF ECLAMPSIA.

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In selecting the subject of Eclampsia for my paper to-day, I do not hope to bring before you anything very new or startling, but I felt that some subject with which we are all more or less familiar, and one that is likely to bring about discussion, would be most agreeable to you. My idea is to discuss briefly the supposed etiology of eclampsia, and with this as a starting point, take up the various methods of treatment.

I was interested, while looking up the subject to note the conception of the disease as held by some of the earlier physicians, and with your permission, I will preface my paper with a few extracts from their writings. Save for the fact that Hippocrates mentions the liability of pregnant women to convulsions, we find no notice taken of the condition until about the latter part of the sixteenth century, when Rosengarten writing of pregnancy spoke of "pregnant women accumulating in their bodies large amounts of a noxious material, which when it flows to the stomach makes it weak and powerless, so that the appetite is lost. Then the fumes and vapors from the material rise to the head, and cause vertigo, specks before the eyes, and other bad symptoms which finally injure the brain."

Peu in 1694 wrote of general convulsions occurring in pregnancy and differentiated between epileptic and hysterical spasms, describing also a species of convulsion due to anemia.

Stissern writing in 1712 divided the attacks into those of epilepsy, catalepsy, and analepsy, and said in refer-

ence to convulsive attacks during pregnancy, which he did not differentiate from true epilepsy, that there are some persons of purely melancholic complexion who have paroxysms during the waning of the moon, or they are lymphatic, and have them during the time of the new moon, or finally there are those of passionate disposition who are not safe at any time.

Somewhat later Ganb evidently conceived a difference between eclampsia and epilepsy, as he wrote of the first as transient, while the second were enduring.

Gehlen in 1777 first really differentiated the disease using the name of parturient eclampsia to describe it. Even this did not serve either to finally fix the name nor the conception of the condition, as we find Kilian in 1814 writing of cases of labor accompanied by epileptic convulsions, and even as late as 1844 Naegele writes of the peculiar convulsions of pregnant women: naming them puerperal convulsions, though the term eclampsia had been in general use for quite a number of years.

This brief review merely serves to show how slowly a definite conception of the disease was arrived at, and it was of interest to me, to see how comparatively a short time it has been recognized.

As the disease became better and better recognized as a definite clinical condition, its causation naturally excited much interest and discussion, and Zwiefel describes it aptly as the "disease of theories."

Among the strongly supported theories, as to the etiology of the disease we find the claim of Frerichs and his followers, that eclampsia was uremic in origin and like the uremia of Bright's disease, and for many years after his work appeared the uremic origin was accepted as the true one. Even to the present time uremia is always noticed in discussing eclampsia, though it is now mentioned chiefly, that it may be refuted, and when we consider the clinical course of eclampsia, its sudden onset in many cases, the rapid recovery after delivery, and es-

pecially the absence of albumin in some of the cases, we see that uremia in its narrower meaning at least can hardly be held as the cause. Spiegelberg and Petroff considered the convulsions as due to retention in the blood of ammonia, or one of the ammonia salts, which acted as the toxic agent. This theory was easily disapproved by accurate clinical analyses of the blood, urine, and other secretions.

Traube and Rosenstein thought the convulsions to be due to hydremia, which when the aortic pressure was suddenly raised, gave rise to edema of the brain, pressure on the vessels, and acute cranial anemia. This theory was not borne out by the findings at autopsy, however, and we know now that most pregnant women are not hydremic. The idea was a plausible one, however, and was widely accepted for a time, as by it could be explained many points which were otherwise unexplained.

The idea of pressure on some of the important organs by the pregnant uterus has also given rise to many theories, and only within the past year Biermer of Weisbaden has written an exhaustive article on the subject of ureteral compression by the enlarged uterus, which he considers the cause of eclampsia. This brings us back immediately, however, to the uremic theory which we may consider as disproven, and besides this, if we consider the compression theory at all, we must immediately answer the question as to why we do not have eclampsia in other conditions where the ureters are compressed. Bacterial infection has been drawn into the discussion of eclamptic etiology, and a good deal of experimentation has been carried out on this part of the subject. Dolere and Rodet were the first, in 1884, to suggest the possibility of the disease being due to bacterial infection, and in 1885 Doleris undertook many culture experiments to prove the point.

Following this lead, many other observers worked at

the possible bacteriological causation without, however, arriving at any definite conclusions. Most of them isolated some form of bacteria which they considered as the active cause, but unfortunately almost each one got a different form of organism, most of which were later identified with one of the already recognized forms, and this fact taken in conjunction with the absolutely negative results of many careful bacteriological examinations, makes one feel that a bacterial origin is almost out of the question, especially when it is asked why if it be bacterial, are only pregnant women attacked?

This brings us to the various theories of auto-intoxication, which for the present, at least, offer the best explanation of the varying conditions which we meet in studying eclampsia.

Bonchard was one of the first to bring forward the theory of intoxication in relation to eclampsia, he regarding the condition as due to the presence in the blood of toxic material the result of changes in metabolism during pregnancy, which toxic material being retained, and not eliminated as it should be by the kidneys, resulted in lessened toxicity of the urine, and an increased toxicity of the blood.

After the appearance of Bonchard's work, St. Blaise, a student of Pinards, denied the auto-intoxication as the result of altered metabolism, but considered it due to an hepatic derangement or a hepatotoxemia following changes in the liver-cells, which in their abnormal condition did not break up the toxic material in the blood, allowing it to accumulate and cause convulsions.

The publication of these theories opened up a new field for the study of eclampsia, and we find following this period a good deal of work appearing dealing with the toxicity of the urine, the blood or other secretions.

Depending upon the methods followed in injecting animals, or other forms of research, we find that varying results were obtained, some observers claiming a greatly

increased toxicity of the blood-serum or urine in eclamptic cases, while others found the toxicity not at all changed. Schumacher has within the year reviewed carefully the work of Bouehard, Ludwig and Savor, Volhard, and others who have worked along these lines, and has followed out carefully their experiments, as well as doing many new ones. He concludes that the varying results obtained were due to the different methods followed in injecting the urine, or the blood-serum, and from his own experiments, he proves that there is no increased toxicity either of the urine or blood-serum in eclampsia. Finally he found in experimenting on the coagulation of the blood, that he obtained as rapid coagulation of healthy blood, on adding the blood-serum of healthy pregnant women, and recently delivered women, as he did from adding eclamptic serum. The general impression that one gets from all of this work on the toxicity of the body fluids, is that there is no directly measurable toxic material present, but that there is probably present in the blood some material which does indirectly exert a toxic influence. Schmorl, another worker on the etiology of eclampsia, was struck, while making pathological examinations on women dying of eclampsia, by the presence of local necroses in the various organs, notably the liver and kidneys, and by the presence of ante-mortem clots in many of the small vessels.

From these findings he envolved a theory that eclampsia was due to an increased tendency to coagulation, the coagulation being due to the presence of placental cells in the circulation. This local necrosis and the presence of coagula in the small vessels was also noticed by Klebs and Lubarsch and by Jung. Klebs considered the necrosis of the liver-cells to be the primary condition with coagulation as the result of presence in the blood of a ferment set free by the death of the liver-cells. Lubarsch and Jung agreed in the main with the Klebs theory.

These theories are not entirely satisfactory, as Schmorl

does not explain why there is not always eclampsia, as placental cells are always present in the circulation, and Klebs does not clearly explain the reason for the primary necrosis of the liver-cells.

Thus far all the work described has been done from the standpoint of maternal causation of the convulsions, and van der Hoeven was the first in 1896 to call attention to the possibility of eclampsia being of fetal origin. He thought that possibly the disease was caused primarily by toxic material of fetal origin, which the eliminating organs of the mother were for some reason unable to get rid of, and as result of this accumulation convulsions resulted. Fehling also called attention to the same thing somewhat later, and since then other authorities have spoken of the possibility. This theory is quite a reasonable one, especially when we remember that the convulsions usually cease as soon as the child dies, or is delivered, or in other words when it stops sending toxic material into the maternal circulation. The cases of convulsions in recently delivered children, where the mothers only had albuminuria is another fact that seems to increase the probability.

This brings us finally to the most recent work done on eclampsia which, though of course still theoretical, throws a little more light on the condition. Dienst during the past year has brought out an exhaustive article and his conclusions are rationally drawn. He examined carefully the organs of both mothers and babies dying of eclampsia, and found in all cases local necroses, and ante-mortem coagulation of the blood in the small vessels.

He also had the blood of both mothers and children suffering with eclampsia carefully examined, and found that there was much more fibrin present than should normally be the case, or in other words, there was a greatly increased tendency to coagulation of the blood. He therefore concluded that there is a material formed

in either the fetal or maternal organism during pregnancy, the result of imperfect metabolism of nitrogenous material probably resembling the "Globulin" described by Kollmann, which acts as a fibrin ferment increasing the coagulability of the blood.

If as a result of renal, cardiac or possibly hepatic insufficiency there is a defective elimination of this material it accumulates in the circulation, there is as a result coagulation in small vessels, local necroses in the liver and kidneys, with further retention and the occurrence of convulsions. Nicholson in 1902 finally adds another theory to the many that we already possess by pointing out the thyroid gland as responsible for the condition. His idea as he states it briefly is as follows: "In some pregnant women for reasons which are at present obscure, the supply of iodo-thyrin in the tissues becomes gradually or suddenly insufficient for the needs of normal metabolism. Coincidentally certain toxic substances (intermediate or imperfectly converted products of nitrogenous metabolism) find their way into the circulation. These toxins by their special property of contracting the blood-vessels eventually lead to arrest of renal circulation, with suppression of urine, convulsions occur, and these do not differ materially from fits of ordinary uremia. A deficiency of iodo-thyrin is the primary fault, the function of metabolic important organs are deranged, and finally a vicious circle becomes established." In support of this theory Nicholson speaks of the known enlargement of the thyroid gland which often accompanies pregnancy, of the effect of doses of thyroid extract in pre-eclampsia conditions, and finally he compares myxedema and eclampsia, considering them much alike in their general characteristics.

This is the way then that the subject of the etiology of eclampsia stands at the present time, namely that most probably it is due to retention in the body by reason of some renal, cardiac, or liver changes, of a material

either fetal or maternal in origin, which is normally eliminated without causing trouble, but which when retained gives rise to coagulation, local necroses and convulsions, and it is from this standpoint that we must take up the subject of treatment.

The preventative or prophylactic treatment is of great importance and I cannot do better than to quote first the indications for prevention as given by Edgar.

(1) Reduce the amount of nitrogenous food to a minimum.

(2) Limit the production and absorption of toxic material in the intestines and tissues of the body, and assist in their elimination by improving the action of (1) the bowels, (2) the kidneys, (3) the liver, (4) the skin and (5) the lungs.

(3) If necessary remove the source of fetal metabolism and peripheral irritation in the uterus by emptying that organ.

These indications can only be carried out for the best advantage of the patient by tireless watching of the symptoms, complete control of the diet, bland fluids in large amount, free purgation as necessary, and the use of various medicinal agents as the need may rise, with the possibility of having to finally induce a premature delivery. Besides these prophylactic measures hot packs have been strongly advised as an important prophylactic in well marked pre-eclamptic conditions, and as it is safe and easily used, it should certainly be used in suspicious cases.

The general trend of the curative treatment points in the same way to the idea of some toxic agent being present, and all treatment in a general way divides itself into three main groups.

(1) Control the convulsions.

(2) Hasten the elimination of the poison which we presume causes the convulsions.

(3) Empty the uterus under deep anesthesia by some method that is rapid and that will cause as little injury to the patient as possible.

It is by the judicious use of all these indications that we can hope to get the best results in every case. Among the measures used to control the convulsions, there are three on which the main reliance is placed, namely, chloroform, opium, and chloral, to which may possibly be added *veratrum viride*. Chloroform if properly used is of great benefit, controlling the convulsions until the slower medicine takes effect, but it may be somewhat dangerous, for when given continuously during the convulsions, it interferes markedly with the already difficult respiration. It is especially useful to abort a just beginning convulsion, and may always be used there in safety.

Morphine is at the present time probably the most frequently used remedy, the usual method being to give a quarter of a grain hypodermically as soon as the convulsion appears. This is repeated on the recurrence of another convulsion, or at the end of an hour, if there is no convulsion in the interval, and so on. Chloral is given in solution and in doses of from fifteen to thirty grains. When given by the mouth it is frequently vomited as it is extremely irritating to the stomach, and for this reason it is commonly introduced into the rectum, in about double the dose given by the mouth.

A combination of both of these remedies often works better than one alone. Stroganoff who has had a wide experience with this disease gives first a hypodermic of morphine, using about one-quarter of a grain. This is repeated twice or three times at hourly intervals, or if there are signs of recurring convulsions, he then gives from twenty to thirty-five grains of chloral by the rectum, every four or six hours until from one hundred to one hundred and twenty grains have been given, then if necessary going back to the morphine. This narcosis being kept up for from twenty-four to forty-eight hours.

He reports fifty-eight cases treated in this way without a death, and in several of the cases where the convulsions came somewhat early in the course of the pregnancy he was able to carry the patients on to term. I must tell you of course, that in addition to the chloral and morphine he used cardiac stimulants, absolute quiet, large amounts of fluid by the rectum, or swallowed if the patients are able, and a rapid delivery if this could be accomplished without danger. Such a number of cases without mortality is a wonderful record, and we cannot but feel that with such a record this method of treatment deserves at least careful attention.

Veratrum viride is also frequently used, and has many enthusiastic advocates. The commonly used preparation is the fluid extract, twenty minims being given hypodermically, and following this five minims every hour. I cannot see why the drug should be so valuable, and I have had but little experience in its use, though in a few cases it has seemed to be of advantage. The chief indication for its use seems to be a very high tension pulse, and this can be possibly better controlled by venesection. The bromides act somewhat too slowly to allow us to place much dependence on them, but they are occasionally used in conjunction with chloral where large doses of this drug are deemed unsafe, because of the heart complications.

In addition to controlling the convulsions we must increase and hasten elimination of the retained toxin as much as possible. Naturally one turns to the bowels and kidneys when elimination is suggested, and in the first place if the patient be conscious and able to swallow, a large dose of Epsom salts is the best possible thing, and it will usually give in a few hours free watery movements. If the patient be unconscious a drop or two of croton oil in a few drops of olive oil, placed far back on the tongue is the best remedy. The kidneys are stimulated to do increased elimination by hot ap-

plications placed over the renal region, by cardiac stimulants, such as strychnia, strophanthus, or digitalis given hypodermically, and best of all by the introduction of saline fluids into the tissues. This may be carried on by frequent enemata of warm salt solution introduced high into the bowels or better by the infusion of sterile salt solution under the skin, or into the vein. If the patient has a hard, bounding and rapid pulse, venesection is indicated, and we may use it in conjunction with the hypodermoclysis, as by this method we get rid of some of the toxic material with the blood, and replace the blood by the infused fluid.

The use of the skin as an avenue of elimination is somewhat questionable. Pilocarpin which was formerly advised is so depressing that its use has been practically discontinued as bad results often followed. Placing the patient in a hot pack is often of value, especially when it is difficult to get the other emunctories to work, but it has always seemed wiser to me to place the greater amount of dependence on the intestines and the kidneys.

If Nicholson's idea as to the influence of the thyroid extract is correct, we should also use that, hoping to relax a spasm of the renal vessels. The emptying of the uterus, as soon as it can be safely done, is also of great importance. It has been repeatedly noticed that on the death of the child in the uterus, the convulsions cease, and it is also an undoubted fact that when the uterus is emptied, the condition clears up. This seems to indicate beyond question that it is our duty to deliver the child as soon as it is safe to do so. Fortunately in most cases, the first eclamptic attack occurs during late pregnancy, or during labor when the cervix is soft, and possibly already partly, or completely dilated. Under these conditions complete dilation of the cervix by the Harris or Edgar method, with the patient under deep anesthesia, the child being delivered with forceps if the

head has entered the pelvis, or by version and extraction if the head is still movable above the brim, gives the best results for both mother and child. The more difficult cases are those in which the cervix is not dilated and in which the cervical canal is still intact. Even in these cases it seems our duty to effect an early delivery of the child, but the question is, how shall it be done?

Manual dilatation in these cases is very slow and difficult, and besides the danger of tearing badly the cervical tissues, we have probably over an hour's hard work with the patient under deep anesthesia. In such cases the cervical dilator of Bossi has been used with good results. It does the work rapidly and is usually not followed by any serious tearing of the cervix. The various elastic bag dilators may also be used, first dilating with a metal dilator, with the patient under deep anesthesia. As soon as the bag is placed, the patient may be allowed to come out from under the anesthesia, controlling the nervous system by morphine. As soon as the maximum effect of the first bag is obtained, with a larger bag the cervix is still further dilated, assisting the stretching by an occasional pull on the bag until the os is dilated enough to allow the head to come through. If the firm de Ribes bag is used, then one application is sufficient to fully dilate the cervix and then either forceps are used or a version is practised. To the man skilled in manual dilatation, it is often possible to obtain the same result by the careful use of the fingers, and it is sometimes possible when the head is firmly engaged to catch it with the forceps, through the partially dilated cervix, and use the head as a wedge for the complete dilation. This is a dangerous practice however, as deep cervical tears often follow. The patient should always be under the effects of the anesthesia before any operative measures are used, as otherwise the handling will certainly bring on a convulsion.

In the same type of cases, namely when the cervix is

not at all dilated, *Accouchement Forcé*, the cervical dilatation being accomplished by deep local incisions into the cervical canal, is sometimes used. Cesarean Section has also been repeatedly advised when an immediate delivery, in the presence of an undilated cervix, is thought necessary, and some good results have undoubtedly followed its use. It seems, however, a pretty serious operation where there are other methods which have given as good results, and the effects of the prolonged anesthesia, with the shock of the operation, on the already weakened circulation, might turn the scales in the wrong way. The vaginal Cesarean Section of *Duhrssen* has been repeatedly used in these last cases with a moderate degree of success, but unless the obstetrician is accustomed to vaginal operations, the vaginal Cesarean Section is an extremely difficult operation. *Duhrssen* in his last article advises a division of both the anterior and posterior lips of the cervix after loosening the bladder in front.

Convulsions appearing first in the puerperium are treated in much the same way as the antepartum or those appearing during labor. In general a better prognosis may be given in these last cases, as the child is born and there is probably no further formation of toxins. For this reason venesection seems especially indicated in this last group of cases, and if used in conjunction with hypodermoclysis, gives good results. Naturally also the convulsions are combated by sedatives, and the heart is carefully watched for evidences of exhaustion.

THE NAUHEIM TREATMENT OF CHRONIC HEART DISEASE.

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HARTFORD.

During the past decade the treatment of chronic diseases of the heart as carried on at Nauheim has come prominently before the profession. The brothers Schott, residents of Nauheim, are to be credited with the method as now carried on at that resort, and the Nauheim baths, resisted movement exercises, and massages as a means of treating all varieties of disease of the heart and circulatory apparatus, has been warmly discussed both in Germany and England. A review of the literature on this subject for a number of years past leads me to believe that the claims made for the Nauheim methods by English and American writers are somewhat more strenuous than those promulgated by the physicians at Nauheim. Aside from this, however, and without discussing the advantages of treating cases of this character at sanitariums rather than at the patients' homes, it may be of interest to consider precisely what is claimed for the Nauheim baths and the result of the treatment there administered.

I had an opportunity this summer to personally visit Nauheim, to see Professor Schott and his assistant, and to gain some idea of the place and the class of patients visiting it. It seemed to me that anything that promises the relief that undoubtedly is there given to chronic diseases of the heart is well worth our time and consideration.

Nauheim is a town of about 4,000 inhabitants, lying at the foot of the Johannisberg, a small hill on the northeast slope of the Taunus range of mountains in the grand

duchy of Hesse. It lies about twenty miles north of Frankfort-on-the-Main at an elevation of about four hundred and fifty feet above the level of the sea. It possesses several springs, some of them being used simply for the manufacture of salt and others are used in the baths for medicinal purposes. The latter come from a depth of nearly six hundred feet below the surface and range in temperature from eighty-two to ninety-five degrees Fahrenheit. These waters contain from twenty to thirty parts of sodium chloride and from two to three parts of calcium carbonate to one thousand parts, with smaller portions of potassium, lithium, magnesium, iron and other minerals. They also contain a large amount of carbonic acid gas, said to amount in weight to as much as four in one thousand, and in volume one thousand three hundred and forty in one thousand. The waters are absolutely limpid on issuing from their source, but they always become discolored on standing from the deposit of the insoluble iron compounds after the escape of the carbonic acid.

An idea can be obtained of the development of this resort by the number of visitors that annually visit Naunheim to take the baths. For example, in 1835 only ninety-five visitors are recorded; in 1865, three thousand, eight hundred; in 1885, five thousand; in 1898, nineteen thousand, five hundred. The number is steadily increasing year by year. The town itself has done everything to stimulate this growth by the erection of suitable bath-houses, casinos, laying out handsome parks and drives—in fact, everything is done to make the stay of visitors agreeable and as enjoyable as possible. Like all other German watering places there is an abundance of excellent music, a band usually playing in the Kurhaus afternoons and evenings of every day, and during the season, which extends from April to November, a series of entertainments, operas, theater, dances, etc., are under the supervision of the governors of the town, to

which all visitors are welcome. As in all German watering-places, a small tax is laid on all visitors, to support the various accessories carried on for their comfort. It varies in different resorts, but in no place, so far as I am aware, is this tax prohibitive or even extravagant.

A few patients visit Nauheim for treatment for rheumatism, nervous disorders and some other diseases, but the greater number are attracted there by the world-wide reputation of Professor Schott, and in the hope of finding relief from some one of the various diseases of the heart and circulatory organs.

By chronic disease of the heart, in the sense I wish to discuss it in this paper, is meant any morbid change in the walls of the heart or in the size of its cavities whether due primarily to endocardial inflammation and subsequent structural change in the valves or not. Whatever may be the origin of the disease, whether an old rheumatic endocarditis leaving an imperfectly fitting valve, or change in the wall of the heart itself due to some acute infection, as diphtheria or grippe, or as the result of a slowly increasing arteriosclerosis with increased peripheral resistance to the circulation, which the heart cannot finally overcome—in all of these various forms the patients come under the observation of the physicians for failure of the circulation either in the general or pulmonary circuit. And in slowing or reversing the blood current in either the pulmonary or general circulation of the blood a group of symptoms develops which compels the patient to seek relief. When these symptoms appear in an individual who has long been subject to some valvular defect, but one corrected by the increased muscular tissue in the heart itself sufficient to overcome the defect, we call it broken compensation. But it is broken compensation in any case, for at some point in the blood-stream there is an undue obstruction to the flow of blood, or at the central pump there is abnormal weakness in its action. Hence the symptoms of circulatory distress soon show themselves.

Time and space will hardly permit me to more than touch on the physiology of the circulation, if, indeed, modern physiology is prepared to answer all the problems that are asked. It is sufficient to remember that normal circulation is dependent, first, on a normally acting heart, one that empties itself at each contraction; on vessels whose caliber is proportionate to the work the heart can do; and capillaries of normal size lined with healthy endothelial cells that offer no undue resistance to the stream. Given a failure or a morbid change in any form of these factors and failure of the circulation sooner or later results---in the heart if the wall is weak and it fails to contract properly, or if a valve leaks so that the blood stream is driven backwards instead of forwards; in the arteries if arteriosclerosis or fibroid changes in the elastic coats of the vessels lessens the natural elastic propulsive function of the artery or actually lessens the caliber of the vessel itself. This may occur from a morbid process outside of the circulatory apparatus, as in the new connective tissue growth of pulmonary emphysema and cirrhosis of the liver. And it may also occur from purely functional nervous changes in the caliber of the vessels, as in Basedow's disease or angioneurotic edema. But wherever developing or from whatever cause, nature always attempts correcting the trouble, causing an increase of muscle both in strength and size, to overcome the resistance.

Practically all of the conditions above mentioned produce sooner or later increased size of the heart, or compensatory hypertrophy. How perfectly this is often accomplished is familiar to us all. We have all seen individuals with hearts enlarged well beyond the nipple line with murmurs at one or more valves, yet who can exercise moderately without distress and who live comfortably for years, often to old age. So long as the heart muscle is vigorous and strong and the general circulation carried on within normal lines, even attacks of acute

cardiac distress, with the severest symptoms of circulatory failure in one or more organs, are frequently followed by the subsidence of all the symptoms, the heart again enlarges, increases its contractural force, and again does double duty, carrying on the circulation against all obstacles until vitality as a whole fails from increasing age or the bulk of heart muscle proves more than the coronary arteries can nourish, and the final breakdown occurs.

In all of these various conditions, and as a relief for imperfect circulation, nature prescribes compensatory hypertrophy of the heart muscle. It is to aid and facilitate this in every possible way that the treatment at Nauheim was evolved. The principles followed are in no wise new, for to encourage compensatory hypertrophy in every possible way is the basis on which all therapeutic methods have been based since digitalis was given to the profession. Moreover, the use of cardiac stimulants, such as digitalis, strophanthus and iron are prescribed at Nauheim, but are considered inferior to the use of the baths and subsequent exercise, for the reason that the latter method is believed to be open to none of the objections that all treatment by drugs involves and also the effect of the baths is considered to be more permanent. The conditions sought to be remedied then are first, lessening of peripheral resistance and a diminution of cardiac dilation; second, the increase of cardiac muscular tissue in the heart wall until the cavity at fault can completely empty itself at each contraction.

Both of these conditions we now seek to relieve by the use of nitro-glycerine, iodide of potash, free catharsis, calomel, salts, etc., and then by the use of cardiac stimulants, digitalis and so on, to increase the force of the heart systole.

The Nauheim method ordinarily commences by attempting by means of the bath to first relax and dilate the arterioles and capillaries so that all peripheral resist-

ance to the blood-current is reduced as much as possible, thus permitting the weakened ventricle to empty itself without the use of digitalis or other drugs.

Second: When the heart shows sufficient regained vigor of contraction to empty its cavities at each cardiac revolution, the temperature of the baths is gradually lowered and the water containing free carbonic acid gas and an excess of salines is used, the effect being to slowly raise peripheral resistance in the vessels, which the heart, stimulated by cold and free gas, attempts to overcome.

Third: Slow resisted exercises are commenced; that is to say, the patient slowly extends or flexes one or more extremities, the effort of extension or flexion being slightly resisted by the massage operator. This procedure throws a gradually increasing strain on the heart that can be adjusted to each individual case and increased as the heart accumulates muscular vigor. The entire course is one of simple gymnastics, the effect being that the heart increases in size, not owing to the dilatation of its cavities but owing to the amount of muscular tissues in the walls, until sufficient muscular strength has been attained so that it is equal to the normal demands made upon it in carrying on circulation.

Heart muscle is trained by this procedure, and by gradually increasing the work it has to do precisely as an athlete's muscles are trained for a wrestling match or boat race.

Three principal varieties of baths are given at Nauheim. The brine bath is a natural mineral water containing twenty-eight parts of chloride of sodium and two parts of chloride of calcium per one thousand. The natural temperature of this spring as it flows from the ground is about ninety degrees Fahrenheit. The water, however, is stored in tanks, which permits the escape of the free carbonic acid gas and heat. The amount of salines in the solution can be increased by adding a

strong solution of sodium chloride. The treatment is commenced by the use of the brine bath. It is brought to a temperature of ninety-five degrees, and the patient given a bath from ten to twenty minutes' duration every second day. The baths are given in specially constructed wooden tubs, the ordinary porcelain or copper tubs soon corroding from the salts and gas. They are under the supervision of a skilled attendant and every care is taken to watch the effect. Usually the pulse becomes slower, softer and fuller, the respirations deeper and slower, and patients usually express relief from oppression of breathing during the progress of the bath. On leaving the baths the patients are wrapped in warm blankets and required to rest or nap quietly for an hour before returning to their rooms. The number of brine baths given varies with the progress of the case. When careful percussio shows that the outline of the apex has receded from one-half to one and one-half inches within its former position, thus indicating an improvement in dilatation, the effervescing baths are commenced. These are the brine baths but with the addition of free carbonic acid gas. The water flows directly from the springs into the tub, losing none of its free gas in the process. The patients are then placed in this bath for a time varying from ten to twenty minutes, the temperature still being from ninety-three to ninety-five degrees Fahrenheit. As the patient improves the temperature of the effervescing bath is gradually lowered and the time increased. Not infrequently it is found that by adding strong solutions of sodium chloride greater effects are obtained. In all cases lowering of peripheral resistance is indicated by reddening of the skin, lowering of the pulse-rate, and deeper respirations. If at any time no reaction appears, the baths are suspended for a longer or shorter time according to circumstances.

When the patient has made sufficient progress so that the prolonged effervescing bath can be taken with bene-

ficial results, resisted movements are then commenced. These exercises follow somewhat the method first advocated by Oertel, but are administered much more cautiously, and it is only until patients are enabled to undergo considerable and comparatively prolonged resisted exercise, that they are permitted the more vigorous exercise, advocated by Oertel, namely, hill climbing.

Towards the end of the course patients are required to walk certain specified distances on paths marked out with posts, and to climb slight hills.

During the course of treatment a general diet of simple, nourishing food is prescribed, but all stimulants are prohibited. Tobacco is allowed in extreme moderation, but malt liquors and wines are forbidden. The course lasts six weeks. If improvement is not attained during that period, it is considered best not to attempt further results from the bath treatment.

The Nauheim baths may be closely imitated without any difficulty. In order to produce the weak bath, or simple brine bath, one pound of sodium chloride and one and one-half ounces of calcium chloride must be dissolved in ten gallons of water at a temperature of ninety-five degrees. The duration of the first bath should not be more than five minutes. Each subsequent bath can be rendered stronger by the addition of more ingredients, until the limit of three pounds of sodium and four and one-half ounces of chloride calcium to ten gallons of water is reached. At the same time the temperature of the bath is to be lowered and its duration gradually lengthened until a temperature of eighty-five and a duration of from one-quarter to one-half an hour is reached. The baths should not be given oftener than once in every second or third day, and as at Nauheim the patient should lie down an hour after each bath.

To imitate the effervescing baths, two ounces of bicarbonate of soda are thoroughly dissolved in the water, and three ounces of hydrochloric acid are added to the

stronger brine bath just before it is to be used. This is usually done by having the acid in a bottle, the stopper of which can be removed at the bottom of the bath, the acid thus being distributed through the lower layers of the water.

It may be asked what is the result attained by the Nauheim treatment as administered there. It must not be forgotten in considering this phase of the question that Nauheim, like all other German watering-places, is a favorite resort for immense numbers of people who take the cure partly because they need it or because it has been prescribed by their physicians, but utilize their six weeks' stay as an agreeable holiday. Many resort to Nauheim year after year finding relief and some improvement of their symptoms, but consider the yearly six weeks' course as an agreeable vacation and tending to prolong their lives. Undoubtedly the majority of patients visiting Nauheim suffer from a form of heart disease induced by the excessive use of beer. Professor Schott told me that probably ninety-five per cent. of all the patients that he saw habitually used beer to excess and suffered in consequence. For such cases, and among men not too old, it is unquestionably the ideal treatment, and I have no doubt that relief is afforded in the majority of cases. From the American point of view it is needless to say that we should be extremely cautious before directing any of our patients to undertake the Nauheim course of treatment. Much harm has undoubtedly been done by ordering patients absolutely unfit for travel to leave home and take the ocean voyage with the hope of being benefited. For patients with moderate dilatation and slight valvular defects, whose physical condition is good and who can afford to travel leisurely and spend sufficient time at Nauheim to receive all the benefits of their stay, the course there given will undoubtedly benefit. For over-worked business men who show symptoms of breaking down and whose hearts are beginning

to fail under the strain, Nauheim, like all resorts, has the advantage that it provides amusement and diversion during the course of treatment, which go far to lessen the tediousness of invalidism and reconcile patients to the loss of their daily routine.

We are all familiar with the difficulty of confining hard worked, active men in bed or in the house, forbidding physical exercise even in the incipient stages of cardiac breakdown. For such as can afford to travel, can be diverted with a six weeks' stay in a charming German village, with plenty of fellow invalids to keep them company and with an abundance of diversion in the shape of music, theater, rides, drives, etc., Nauheim probably offers the best solution of the problem that we now have. But for older and more serious cases where the probabilities are that the heart is breaking down permanently, where there is advanced arterial sclerosis or a badly broken general physique, I am inclined to advise that these cases be kept under observation at home, where they are spared the effort and exertion of travel and where relief can be obtained at any moment when needed.

DIPHTHERIA.

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It was my intention to present a paper at our last *annual meeting upon this subject in connection with a report of the very severe epidemic of the disease which we had just experienced in our community, but learning that our county reporter, Dr. C. B. Newton, had prepared a report of the epidemic I did not do anything in the matter. I will now carry out my intention in part, giving herein the views impressed upon me, as to the disease, but making no report of the epidemic. Diphtheria is an acute, contagious or communicable disease, occurring sporadically, or when not properly quarantined, as an epidemic; the characteristic symptoms being an intense inflammation of the mucous membrane of the pharynx, attended with exudation of a white, or grayish deposit thereon. Different observers compare the appearance of this exudate to different objects, some to coal ashes, others to pus thrown out on the surface, etc. My own observation in the early stage of the affection leads me to compare it to a cobweb thrown out over the whole surface of the parts affected. Sometimes this membrane extends to the posterior and anterior nares, and in very severe cases extends to the skin of the upper lip. The spreading and thickening of the membrane is very rapid at times, twelve hours being sometimes sufficient to alter the cobweb appearance to that of a thick, tough, whitish membrane nearly filling the pharynx and of leathery toughness. It is a peculiarity of the disease, that, with such an extremely severe local inflammation, there is rarely much local tenderness manifested, the patient being able to swallow liquids by the

*Read before the Annual Meeting of the Tolland County Medical Association.

cupful, and solid food as well, without any of the severe pain attending a suppurative condition, or of follicular tonsillitis. The sudden onset and rapid development of the disease is remarkable, in many cases there was no prodromal stage whatever, no apparent period of incubation. Often when called to attend a case the history would show that the child was well as usual the previous day, and attended church or perhaps an entertainment in the evening, when an examination of the throat at this first visit would show a membranous deposit completely covering the tonsils and sometimes the uvula as well; accompanying this local condition would be found a temperature of 103° or 104° and pulse of 120 or 140 or more, flushed face, headache, and all the attending symptoms of a grave constitutional disturbance.

That it is a germ disease there can be no doubt, the particular germ giving rise to it being termed the Klebs-Löffler, after its discoverers, these two men having published their discovery at about the same time, and quite independently, each being thus entitled to the honor of the discovery. That it is a constitutional affection due to infection of the system from its local manifestation in the throat, seems most probable, there seeming to be a direct connection between the amount of deposit in the throat, and the constitutional disturbance, but just why this severity of local and general disturbance should vary so greatly in different individuals, can be accounted for only by the greater ability of one system to combat it, than another, or to the varying degrees of virulence of the bacillus, which is sometimes of so little effect as to produce no constitutional symptoms, the child being up and running about, with but little local disturbance in the throat, and were it not for the bacteriologist and the microscope we should be unable to diagnose the case as diphtheria, while perhaps in another child in the same family the local and general symptoms are most severe,

the prostration extreme, and all the attending symptoms of the utmost gravity.

The disease is communicated by direct contagion, personal contact not being necessary, presence in the same room being sufficient, or the casual meeting of one affected. Physicians and nurses contract the disease through lodgment of the germ upon the person, from the patient expelling it in coughing or gagging during the examination of the throat. Again, it is contracted through garments or bedding worn or used by the patient, the germs having been found thereon after months have elapsed, when the same had not been properly fumigated. The disease is one of childhood, although not confined to this class, many adults being attacked and succumbing thereto, where fear of result has an undoubted influence, even though we have a much better chance to fight the disease locally, owing to their allowing us to use local applications thoroughly and they co-operate with us toward a cure. But the disease like all other severe constitutional affections finds its victims among those of low vitality, due sometimes to heredity, or poor nutrition or previous attacks of illness, or to any of the numerous causes producing the condition. The local complications of the disease may be hemorrhage from the throat or nose or both, with at times an extension of the inflammation to the larynx or bronchi, although it is doubtful if the membrane extends further than the larynx, causing what is termed laryngeal diphtheria. I cannot agree with those who contend that membranous croup and diphtheria are the same disease, though certainly the autopsy of the former should establish definitely the presence or absence of the diphtheria bacillus. Paralysis of the different muscles form an important part of the complications of the latter part of the attack, the muscles of deglutition being frequently first involved, or the vocal cords; sometimes general muscular paralysis occurs, and again that sudden, terrifying,

unlooked for paralysis of the heart, when the disease is apparently progressing most favorably.

The diagnosis of the disease is at times impossible by the unaided eye, but, thanks to the microscope and the fact that the disease cannot exist except the Klebs-Löffler bacillus be present, we have an unfailing and rapid helper in making a positive diagnosis, and in this connection let me urge upon the members of this Association to impress upon their local representatives to the state legislature the importance of their support of the bill for the establishment of a state laboratory for bacteriological, chemical and microscopical work for the public, thus making it possible for cultures to be made for everyone. Frequently the diphtheria germs will not be found at the first examination, while at a subsequent one they will be present in abundance. The microscope is also an unfailing test for the removal of quarantine, when the patient although clinically recovered, might yet transmit the disease. Some cities require at least two negative cultures before allowing the removal of quarantine. This seems a hardship to individuals, but is really the only possible way of stamping out the disease in a community.

The prognosis of diphtheria has changed greatly for the better since the introduction of the antitoxin treatment, statistics showing that whereas formerly from forty to sixty per cent. of cases proved fatal, the mortality is now reduced to from five to fifteen per cent., different epidemics varying in severity or in virulence of the bacillus, as before alluded to. The prophylaxis of the disease is most important in preventing its spread. First of all is isolation of the sick, then, thorough disinfection of clothing, bedding, etc., strict quarantine of the house, and this not to be removed until the microscope shows the absence of diphtheria germs, and this absence should not be secured by spraying or gargling

the throat with bichloride or other disinfecting solutions, and immediately following with the swab to be submitted to the bacteriologist, as only temporary absence is thus secured. The periodical inspection of throats of children in the public schools, as now practiced in many cities is most commendable, and cannot fail to help out prophylaxis. Next to a correct diagnosis, treatment is the most important and of the most interest to the practitioner. Hygienic measures consist of a large well ventilated room, with little or no furniture, save bed, table and chair, the temperature of the room being kept at a regular point, the air being kept moist by kettles of water or by an atomizer. The nourishment of the patient is most important, and should consist principally of liquids, as milk, cream, raw eggs beaten with milk, and whiskey sometimes added, the various beef preparations, and cereals. The local treatment should consist of spraying the throat and nose with proper antiseptics. Gargles are of little benefit, as they cannot get far enough back to reach the affected parts, and swabbing and sponging are most suffocating and terrifying to the little patient, and I believe the swab should not be used at all, as a hurried swabbing is liable to injure the inflamed and swollen membrane, and one can scarce ever use deliberation in the act. The spray on the contrary cannot do injury and reaches every most obscure part of the throat, and by inhaling during the spraying the spray may reach even the larynx. Constitutional treatment, general supporting measures should be carefully carried out in the way of medicine, but it is to diphtheria anti-toxin that we now turn with so much confidence. Previous to the epidemic above referred to, I was not an enthusiast in regard to it. I had used it, but more from a sense of duty and to satisfy the public demand, than from any faith in its virtues, but its extensive use during this period most fully converted me to its support. It is the treatment par excellence. Its effect is at times

almost magical. In from eight to twelve hours after its use, the temperature will fall three, four or five degrees, with a corresponding reduction in pulse-rate, and the throat, which at the time of the injection was almost obscured by membrane, will be found nearly clean, reddened and swollen to be sure, but the membrane, that we all so much dread, will have nearly disappeared. Of course this rapid improvement does not follow in every case, but in nearly all cases, the repeated use of the antitoxin brings about a favorable result. We are all only too well aware of the struggles and outcry that almost invariably accompany an attempt at making a local application to a child's throat, the necessary depressing of the tongue during an examination being enough at times to almost throw a child into convulsions, and the scream with which we are greeted at our next visit, on our entrance to the sick room, testifies to the child's recollection of the previous battle and preparation for a repetition of the same. How different the scene when the antitoxin is used. Then the child may be gently laid upon its face, and quietly held by mother or nurse, while the injection is made into buttocks, thigh or back, and all local treatment may be omitted if necessary, so sure is improvement to follow; and this improvement can be gauged by the general condition when these terribly exhausting struggles render an attempt at inspection of the throat unwise, and it has long been my opinion that the depression caused by these struggles and frights more than counterbalances any benefit derived therefrom.

The earlier the antitoxin can be used, the more favorable the result. One to two thousand is the initial dose and in most cases is sufficient. In two of my cases of the same age and general physique, with apparently the same severity of attack, pulse, temperature, and membrane all corresponding most closely, I made a test of different preparations of antitoxin. In one case two

thousand units was used, in the other five thousand. Both recovered, improvement following with corresponding rapidity in both cases. I used the larger quantity in three injections with a few hours interval, at the request of the parents. The method of introducing the antitoxin is of course by the hypodermic needle and syringe. Great improvement has taken place in the method of preserving, transporting, and injecting the antitoxin. As first prepared an ordinary vial and cork with membrane tied over it was used, then came the little bottle, with drawn-out stem which was to be broken off and the contents drawn into the syringe by introducing the needle into the bottle. To secure the last drop the needle must scrape around the bottom of the bottle, thus oftentimes destroying its point, while if a blunt needle is used a change of needle is required, both of which must be sterilized and time lost, when expedition is most desirable. I now present you the latest advances in this line—the Mulford piston syringe, the Stearns and Alexander bulb syringe. In each everything is ready—nothing to sterilize, save the skin of the patient, no large volume of liquid to inject, a sharp needle, and a syringe which will expel the last drop of liquid, which is most important from a financial as well as a clinical standpoint.

LARYNGEAL HYSTERIA.

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Hysteria has been defined as a "state in which ideas control the body, and produce morbid changes in its functions." When these changes occur in the larynx they may be classed under the head of laryngeal hysteria, or, as is sometimes preferred, functional diseases of the larynx.

The etiology, as in other hysterical conditions, is dependent, first of all, upon a neurotic hereditary tendency, the family history often throwing much light upon the nature of the case. Dr. Pegler of London (*Journal of L. R. and O.*, March, 1900), reported a case of intractable aphonia in a girl twenty-two years old, whose grandfather and two brothers were epileptics, and whose mother had been subject to hysteria.

Females are more liable to the affection than males, and especially so at puberty or the menopause, or when suffering from ovarian or uterine diseases.

In these people, neurotic by inheritance or made susceptible by disease, a comparatively slight exciting cause is sufficient to refer hysterical symptoms to any special locality. A slight cold in such a person will often induce aphonia, when the temperament of the patient, the history of previous attacks, and the trivial pathological changes in the larynx, assure us that the symptoms are exaggerated. Such cases are very common, and as a rule respond readily to treatment.

Nervous and physical exhaustion will often prove sufficient to excite laryngeal symptoms. A trained nurse, a female, forty-eight years old, while engaged upon a long and tiresome case, was suddenly seized with

an attack of dyspnea. Her condition appeared most desperate, and on examination, the vocal cords were seen very firmly adducted, the passage for breathing being limited to the small triangular space posterior to the vocal processes, which is controlled by the arytenoidens muscle. She appeared neurotic, gave a history of previous attacks, and responded readily to suggestion and nervine sedatives.

Mental or physical shock has decided etiological significance, and the fright and irritation caused by choking or from a foreign body, may produce a lasting impression. A case in point is that of a young man, twenty-seven years of age, who had swallowed no solid food since having been choked by a bread crumb two months before. His larynx was normal, his esophagus unobstructed, and upon being reassured, he was induced to try solid food, which was swallowed without difficulty. Since that time he has had no trouble, although even yet, two and a half years later, he is a little timid about eating meat.

Imitation is a well-known cause in susceptible people, and this is illustrated in the case of a girl of twenty, in whose family there had recently been a death from tubercular laryngitis accompanied by loss of voice. When the patient applied to me for treatment she gave a history of four days hoarseness followed by three weeks of complete aphonia. Her cough was phonetic, and the larynx was found normal on examination. She was induced by suggestion to use her voice and has had no recurrence, so far as known, in two years.

A very fertile source of trouble is the desire for sympathy or material benefit. I once attended a case of hysterical aphonia which speedily recovered when a sick benefit expired. The woman was otherwise thoroughly honest, and even in this I believe her to have been free from any deliberate intention to deceive.

Many theories have been advanced in regard to the

pathology of hysterical affections. Shurly states, under this head: (Diseases of the Nose and Throat, p. 231), that he "has long believed that in the majority of cases of habitual hysteria or allied exhibition of loss of mental control there must be some sort of structural or at least physical derangement of the nerve elements, either in the nerve centers, or ganglia or conducting nerve fibers."

While this may be correct, we have no proof of anything more than a perverted mental impression; although in some of the cases of long standing there may be degeneration of muscle or nerve tissue from lack of use.

The symptoms of laryngeal hysteria are cough, aphonia, apathyria, dyspnea, paresis, inco-ordination and disturbances of sensation.

Perhaps the most frequent symptom of all is cough, usually of a paroxysmal, croupy character, and often absent at night.

Aphonia is also a very common symptom and may be intermittent or persistent; while inability to whisper, or apathyria, is much less frequently seen. Aphonic patients can frequently be surprised into laughing aloud when it is impossible to induce them to speak above a whisper.

Dyspnea is often present, sometimes with no apparent reason, or may accompany abductor paralysis or hysterical spasm. Dr. Hopkins of Springfield reported a case of hysterical spasm before the N. Y. Academy of Medicine in 1898, which was so severe as to require general anesthesia; and which was finally cured by four unsuccessful attempts at intubation.

Bosworth divides laryngeal inco-ordination into chorea, dysphonia spastica, and laryngeal vertigo.

Chorea of the larynx consists of repeated laryngeal spasms of a few seconds duration, and often involving adjacent parts. The following case, which I first saw in October, 1899, well illustrates this interesting affec-

tion. The patient was a woman of sixty-one, and complained of dyspnea, dysphagia, and occasional regurgitation of fluids through the nose. Little was found on examination to account for her symptoms, as beyond a slight laryngitis and a varicose condition at the base of the tongue, the parts were practically normal. On prolonged examination, however, a most peculiar condition was observed. The epiglottis dropped lower and lower until it came in contact with the posterior pharyngeal wall, and seemed to entirely obstruct respiration. On raising the epiglottis with a probe a powerful contraction of the glottis could be seen, which was found to include the entrance of the esophagus, the regurgitation through the nose probably being due to the latter cause. The spasm relaxed during phonation, was relieved by automatic movements of the throat, and on a few occasions only was the dyspnea alarming. The symptoms were absent during sleep, and less troublesome when the attention of the patient was diverted. The woman's physical condition was very bad, as was her environment and opportunity for treatment. I cantherized the base of the tongue, with some temporary improvement, after which the symptoms remained about the same until her death, a few months ago, of some dropsical affection. The throat trouble seemed to exert no influence in bringing about the fatal result.

Dysphonia spastica differs from chorea in the fact that the glottic spasm occurs only upon attempting phonation. The spasm is tonic in its character, and usually persists as long as the effort to speak is maintained, sometimes even producing cyanosis. I have recently seen a case in which the character of the spasm differed, but which was undoubtedly of a similar nature. The patient was a young woman of thirty-one, and attempted phonation produced a clonic spasmodic condition of the larynx, giving a peculiar effect to the voice, some syllables being fairly distinct, while others were unintelligible

or lost. She gave a neurotic history, having had nymphomania, for which oöphorectomy had been performed.

Laryngeal vertigo is of rare occurrence, and is characterized by a sudden sense of irritation in the larynx, with cough and dizziness, followed by loss of consciousness. The attack is preceded by a deep inspiration, and as the laryngeal spasm closes the glottis, expiration is prevented, with resulting increased thoracic pressure and disturbances of the circulation. Recovery from an attack is usually prompt and complete, although recurrences are the rule.

Disturbances of sensation in the larynx are very common, and their variations innumerable. They may consist of anesthesia, hyperesthesia or paresthesia, actual pain being rare in purely neurotic affections.

The laryngoscope, in laryngeal hysteria, may demonstrate a perfectly normal larynx, or simply an indecision of movement, the cords coming together but instantly separating. The examination may also show spasm, or the appearance of paralysis, either of the muscles of adduction or abduction. Killian, of Freiburg, (*Journal of L. R. and O.*, September, 1901) has made investigations tending to show that the apparent paresis in hysterical aphonia and dysphonia is not a muscle paralysis, as the muscles are not persistently paralyzed, but is the peripheral expression of a deficiency in cerebral will movement. He also testifies that all hysterical appearances, even the unusual spasm movement, can be produced at pleasure by healthy persons after long practice.

Frequent mistakes are undoubtedly made in diagnosis, for the difficulties in arriving at a correct opinion are often many and various. The early stages of tuberculosis, rheumatism involving the arytenoid joints, and other constitutional diseases, as well as reflex conditions, or a hidden affection or growth in the larynx must be borne in mind. The diagnosis may be especially difficult when hysterical and exaggerated symptoms accompany some

actual pathological condition in the larynx, and a careful inquiry into the family and personal history may be necessary to form a positive conclusion.

A very interesting case in this connection has been reported by Dr. Middlemass Hunt, (*Journal of L. R. and O.*, July, 1899.) A young girl of sixteen attended the wake of her mistress who had died suddenly. The coffin containing the body, which had been placed on end in the middle of the room, was, during the debauch which followed, accidentally knocked over and the corpse thrown to the floor. The girl screamed, became unconscious, and was taken home; and for the next two or three years was absolutely mute, never being heard to utter a sound of any kind. When she tried to speak her lips moved but no tone was emitted. Later, however, she began to whisper, and on one occasion, while under ether, spoke audibly. All treatment was without avail, and the patient remained aphonic for about ten years, when her voice returned suddenly on the morning after a shock received on the street, from witnessing a fatal accident with a copious flow of blood. The interesting part of the case is the view which was obtained by the laryngoscope during the long period of aphonia. The true cords were immovable, while there was approximation of the ventricular bands, the so-called "Taschenbandsprache" of the Germans, in their efforts to produce speech as sometimes occurs after injury to the true cords. The history proved conclusively the nature of the case, but without it, or evidences of a neurotic tendency, the diagnosis would have been very difficult. The administration of an anesthetic will sometimes clear up the diagnosis.

The prognosis is, as a rule, favorable in recent cases, although much depends upon the effort which the patient can be induced to make. Recurrences often take place, and many cases persist in spite of all treatment.

In the treatment of neurotic affections of the larynx, it is necessary, first of all, to obtain the confidence of

the patient. This having been accomplished, the remedy par excellence is, as in all other hysterical conditions, suggestion; and the effect is directly in proportion to the impressiveness of its application. This is often enhanced by the simultaneous use of some appliance or the electric current. The administration of an anesthetic or the performance of a trivial operation, either to relieve a focus of irritation attracting attention to the part, or for the moral effect, may produce beneficial results. In fact, any nervous or mental impression or shock may cure an hysterical condition. All reflex causes should be removed, as a plug of impacted cerumen or foreign body in the ear, or any abnormal condition in the nose or pharynx. Constitutional defects should be corrected as far as possible, and especially should systematic rules be prescribed regulating diet, exercise and bathing. Bromides and other sedatives may be of value, as well as the use of general tonics. Local pathological conditions should be treated, electricity and massage given a trial, and finally, above all, every endeavor should be made to reassure the patient.

EARLY SYMPTOMS OF DEMENTIA PRECOX.

A. R. DEFENDORF, M.D.,

MIDDLETOWN.

Dementia precox is one of the most prominent forms of mental disease, constituting over twenty-five per cent. of the insane of Connecticut, committed to the State Hospital during the past four years. It should also be of the greatest interest to the general practitioner because of the gradual and often insidious character of its onset, which places its patients in their hands long before necessity seems to demand the care of a hospital. During this period the disease is often unrecognized and untreated.

It is essentially a disease of youth and early adult life, which is characterized by a progressive mental deterioration leading to dementia of different grades, varying from a very moderate degree to the most profound. The disease process when well established is usually recognized without difficulty. At this time hallucinations of hearing are especially prominent, consciousness is usually not clouded, although most patients do show some difficulty in comprehension. The power of attention is undermined by an increasing lack of interest. Memory shows a progressive impairment. The store of ideas becomes more and more scanty and thought more limited. Judgment is defective, as shown by the presence of delusions, which at the beginning are more often of a depressive nature, but later may become expansive. These disturbances of the intellectual side of the mental life are usually accompanied by emotional deterioration—emotional apathy and indifference. Temporarily there may be considerable despondency or exhilaration, as well as irrita-

bility, when hallucination and delusions are very numerous, but the fundamental alteration is a progressive emotional indifference. Volition becomes gradually paralyzed, and we find the patients exhibiting an increasing lack of energy. They are sluggish and listless. Transiently, there may appear restlessness or agitation, and even considerable motor excitement. Also peculiarly modified movements, called mannerism, catalepsy and negativism may occur, but here also the basic change is an increasing anergy.

This in a general way characterized the disease picture of dementia precox, but clinically the cases appear in one of three groups, the hebephrenic, the catatonic and the paranoid. The peculiar symptoms constituting these various forms will not be discussed here, but our observations will be limited to the early symptoms of the disease which are practically the same for all of these different forms.

These early symptoms may be conveniently grouped into four different classes; namely, cases where there is simply mental deterioration without hallucinations or delusions, cases where a few indefinite delusions appear, cases of a neurasthenic character, and finally those of an hysteroid character. These can be best demonstrated by illustrative cases.

SIMPLE MENTAL DETERIORATION WITHOUT HALLUCINATIONS OR DELUSIONS.

The first patient is a young man of excellent family history. He developed normally as a boy and was of a cheerful, happy disposition. He was a good student, and graduated with honors from the high school.

Nothing of an unusual character was noted until after his graduation, when a change in disposition came over him. At this time he failed to show any interest in the further pursuit of his education, or in adopting a profession. Instead, he remained about home and, contrary to his usual custom, did not even aid his parents in the farm

duties. Pampered by his mother, he was allowed to devote his time to social life, of which he had always been very fond, but in the course of six months he wearied of this sort of life and began to drop his friends. He remained at home, secluded himself in his room much of the time, occasionally reading pictorial newspapers, but more often sitting unoccupied in a sort of dreamy mood. Formerly his wearing apparel and his personal appearance had been matters of great pride to him, but now he became careless in these respects, and went about with disheveled hair and unpolished boots. Social obligations and church relations no longer interested him. Acquaintances and strangers calling at the house were avoided. Later financial difficulties of his father, and later his fatal illness, did not arouse him to a sense of responsibility. He no longer read, and never volunteered conversation, while his answers to questions were monosyllabic, clearly indicating his total disinterest in what was transpiring about him. Some months later, when thrown upon the charity of his sister at the death of his father, he could not be encouraged to do any sort of work. When urged he usually became irritable, and retaliated by saying he would show them that he did not have to work. At this time he spent most of the time sitting behind the kitchen stove. He showed absolutely no interest in the affairs of the household; occasionally when sent to the shed for wood he would be found half an hour later standing idly against the side of the building. During the succeeding six months he became more careless of his appearance; refused to bathe, to have his hair cut, and at times to remove his clothing upon retiring at night. At this time the patient was committed to our care, when it was ascertained that the disease was already far advanced. The memory for both recent and remote events was greatly impaired, judgment was weak, emotional deterioration extreme and paralysis of the will power marked.

This is a case of dementia precox in which the onset was most insidious and the course progressive, leading to dementia before friends and acquaintances were aware of the existence of any disease process, or of the necessity of medical consultation and treatment. Because of the absence of hallucinations and delusions, the sine qua non of mental disease in the minds of most practitioners, cases of this sort are progressing to dementia in many communities of the State unrecognized and untreated. A considerable number of the so-called professional tramps, as well as alcoholics, are really individuals suffering from this disease, destined sooner or later to reach the insane hospital.

SIMPLE MENTAL DETERIORATION WITH A FEW INDEFINITE
DELUSIONS.

The second class of cases is characterized by a gradual development of dementia accompanied by a few indefinite delusions, and is illustrated by the following case. This patient is a well developed girl whose grandmother had been insane. In early childhood she had scarlet fever, with an abscess on her neck, followed by double otitis media purulenta, which still persists. Menstruation began at eleven years, had always been excessive, and at times, from fourteen years, very scanty. Her teachers claimed that she was backward in her studies, but applied herself well to her work. In disposition she was quiet and bashful.

At sixteen it became evident to her parents that she was undergoing a change in disposition. She became more reserved and preferred remaining alone in her room while studying evenings. She lost weight, seemed languid, and had no relish for food. She confessed to her mother that she was worrying greatly about a leucorrhœal discharge. She thought that it was a bad disease, that her teacher also had it and had gotten it from her. Because of her physical condition it seemed best for her

to remain out of school for the remaining two months of the school year. The change was immediately beneficial and she improved in weight and appetite and appeared less reserved. But still her former energy was lacking, and she failed to show her usual interest in the household duties. In the fall she could not be induced to return to school, as she felt that the teacher and scholars had turned against her. About this time she would often return from the neighbors, saying that she thought they had acted strangely toward her and did not want her to call on them. She was aware that a change was coming over her, and said she longed to experience religion and wanted to be good, but something seemed to prevent her. She cried a great deal, especially when attending church. She tried to pray but could not. Conscious of her peculiar actions, she wanted to unburden her heart to her mother, but felt as if she could not. Her attitude was one of despondency and she became more seclusive and reticent. Physically, nutrition became impaired, the weight fell, constipation and anorexia appeared. In the course of three more months irritability and a tendency to impulsive actions developed. Once she threw dishes upon the floor, at another time a lamp, and finally broke out window panes without other reason than that she felt like it. These acts led to her commitment to the hospital. It is unnecessary to follow through her history at the hospital, where further symptoms of the disease have developed.

A case of a similar sort, in which the symptoms were of a more insidious character and in which the delusional ideas and impulsive actions were of a more serious nature, is as follows:

The patient is a young man of good parentage who had always enjoyed excellent health. The first change was noted at twenty-eight. At this time he began to have trouble with his employer, lacked his usual civility in responding to minor complaints, and was surly. His

duties at times were indifferently performed and some irregularities were noted. Old friends were dropped, and instead of going to the club evenings, he would walk through the main street alone, and then return home to lie on the sofa or sit alone in his room. He ceased attending church and often argued against his religion. Unintentional annoyances by others while at work were taken as purposeful hindrances, and at times led to hot words. At home he could not tolerate jokes, but became angry and even profane with his sisters. He would not brook interference or tolerate any suggestions from his younger brother by whom he thought he was being supplanted. The family, unaware of the pathologic character of these manifestations did taunt him more than usual, while the male members of the family coped with his surliness by administering one or more punishments. This behavior on their part gave rise to the idea that the family intended to force him to leave home. Following this he became still more sullen and resentful, and finally armed himself for an anticipated assault. Some months later when reproved by his parents for the use of profane language before his sisters and ordered to leave the house he shot and injured both his father and brother. Fortunately, this patient fell into the hands of two physicians who had had special training, and his disease was clearly recognized, so that he was sent to the hospital, where close examination corroborated their diagnosis of beginning dementia precox.

It is not at all unusual that cases of dementia precox, as the result of persecutory delusions, come in conflict with the law. Unrecognized by the medical and legal profession, most of these cases are subjected to the hardships of penal institutions instead of treatment in institutions provided for their care. During the past five years the majority of the youthful cases sent to our institutions from the States' prison and jails have been suffering from this form of disease whose early symp-

toms must have been in evidence at the time of the commitment of their crime.

NEURASTHENIC CASES.

The third class of cases is represented by the following: The patient is a young man of good family without neurotic taint, except that his father had been intemperate and immoral, and there had been a history of tuberculosis on both sides of the family. He had passed through an uneventful boyhood, had been a good student, and after graduation had been successfully employed as a bookkeeper. From the ages of sixteen to eighteen he had been addicted to moderate masturbation, and also had been moderately intemperate. At nineteen, following an attack of gonorrhea which had subsided into gleet, he presented a gradual change of character, first noted by his parents during his annual vacation at home. He displayed no interest in family affairs, but remained alone and seemed to be self-absorbed and suspicious. Unbeknown to his parents he was reading quack literature, and had consulted several physicians of the same order in reference to his trouble. He conceived the idea that the use of metallic sounds had forced the disease backward into the deeper parts, where it had communicated with the spinal column and was undermining his health by allowing the escape of the "vital fluid." This gave rise to various neurasthenic symptoms, such as pains in the head, dizziness, peculiar sensations in the limbs, as well as increased sense of fatigue. As objective symptoms he presented impaired nutrition, loss of weight, increased reflexes, and vasomotor disturbances. Self-absorption increased, and his sole topic of conversation was in reference to his somatic disorders. He soon returned to his work, which he could follow with only indifferent success. He would frequently absent himself from his desk, and would be found standing alone in the basement of the store, gazing vacantly before him. His incompetency increased and led to his dismissal six months

later. For the two succeeding years he remained about home, idling away the time. Meanwhile his hypochondriacal ideas of a sexual nature gradually faded and somatic delusions of a pronounced character took their place. He also expressed delusions of influence, and said that he was being hypnotized and that others could read his thoughts. Deterioration of memory and judgment advanced, and impulsive acts and silly laughter occasionally appeared. At the time of his commitment to the hospital at the end of this period the disease was already far advanced.

Such cases at the onset are naturally regarded by most practitioners as cases of neurasthenia. While it must be admitted that sometimes the distinction between neurasthenia and dementia precox at the outset is not easy, yet most cases of the latter disease can be detected. In neurasthenia there is always present an adequate cause for the asthenic state of the nervous system. This is rarely present in dementia precox. The emotional attitude of the neurasthenic is very different from that of the dementia precox patient. In neurasthenia there is usually some despondency, also apprehension for the outcome of the disease, but this emotional condition regularly varies, and the patients have their hopeful days when they are cheerful and buoyant. Neurastheniacs regularly improve as the day wears on and in the evening one usually finds them at their best, and capable of some mental application. In dementia precox, on the other hand, despondency if present, is constant and shows neither daily nor hourly variations. The usual emotional attitude is that of increasing indifference and apathy.

Again, hypochondriacal ideas, while present in both neurasthenia and dementia precox are essentially different in each disease. In neurasthenia the hypochondriacal ideas are extensive, usually involving several parts or organs of the body; there is the feeling of pressure in the head, roaring of the ears, palpitation of the heart,

coldness and numbness of the extremities, etc. In dementia precox hypochondriacal ideas are far less extensive, and usually center about one or two organs, and are quite apt to involve the sexual organs. Furthermore, in neurasthenia, hypochondriasis tends to increase except as the disease abates, while in dementia precox it tends to diminish as the disease progresses. Neurastheniacs are apt to complain of failing mental power, and express the fear that they are losing their minds in the absence of such symptoms, but in dementia precox, evidences of deterioration really exist, which are not recognized by the patient. Finally, in dementia precox, impulsive acts are often present, but rarely encountered in neurasthenia.

HYSTEROID CASES.

The following record represents the cases of dementia precox in which hysterical symptoms are prominent:

The patient, a young lady of good family history, was always considered eccentric, unusually bashful, and somewhat seclusive. At the age of eighteen, while in service as a maid, she began to show greater timidity and became seclusive and reticent. Two months later she left her place of employment and returned home unannounced. Here she immediately went to bed and remained, saying that she did not feel well, though she presented no objective signs of illness. She complained of headache, indigestion and palpitation of the heart, but refused medical attendance. Whenever her mother insisted upon her leaving the bed, she regularly developed hysterical attacks with laughing, crying, screaming, and convulsive movements. In the course of four months she gradually improved, and upon the insistence of her mother who found her a place, re-entered service. She, however, worked indifferently and required constant prodding. Hysterical attacks were apt to recur at critical times when her assistance was most needed. Most of her time off duty was spent in her room and she rarely

went home to visit. Following this she frequently changed her places of employment, rarely staying longer than four weeks in any one place. These changes were usually made without warning, and always without excuse. On two occasions during the succeeding eight months she returned home for two weeks at a time and suffered from what her physicians called hysterical attacks. Finally she went home saying that she had a vision, probably an hallucination, in which she claimed to have seen a black woman enter her room and touch her while asleep. By this time it was noticeable that she had lost interest in her personal appearance, and was paying little attention to her religious duties. Sometimes her mother would find her sitting on the floor laughing over her baby books. The tendency to indulge in unrestrained and meaningless laughter became more marked, and she would laugh not only at table, but also on the street. Two months later, about one year after the onset of the disease, the patient was first seen by me, and from this time the disease has presented the characteristic picture.

The hysterical manifestation early in this case would naturally obscure the diagnosis. In differentiating dementia precox from hysteria the following symptoms should be borne in mind. In hysteria there is always present what is termed the hysterical basis. This condition usually makes its appearance during puberty, and is irregularly manifested by various hysterical symptoms. Such a condition occasionally antedates dementia precox, but is by no means essential. The emotional attitude is quite different in the two diseases. In hysteria the patients are entirely under the control of their feelings, and we find them vacillating from one mood to another impelled by the most trifling incidents. At one time they are extremely despondent, at another very angry, and again they are happy and cheerful, or sullen and disgruntled, but always craving sympathy. In dementia

precox the characteristic emotional state is one of emotional indifference and apathy, with an absence of reaction to the environment. Transient despondency or moderate exaltation may be encountered but these states do not vary from hour to hour or day to day. In hysteria hypochondriacal symptoms are extensive and involve more than one organ, while in dementia precox they are limited.

Hysterical paroxysms are characterized by both sensory and motor nervous symptoms. In dementia precox the only paroxysms that ever occur are motor and of an epileptoid nature. In hysteria the mental processes of perception and comprehension are unimpaired. The patients are even keen in the recognition of their environment, especially any defects in it. In dementia precox occasional hallucinations, such as occurred in this last case, are encountered very early in the disease. In hysteria genuine hallucinations and delusions are never present. What may seem to be hallucinations and delusions are found upon close inquiry to result from fabrication and a lively imagination. The store of ideas in hysteria rarely suffers any impoverishment, though voluntary conversation usually centers about the patient's ills, but in dementia precox desultoriness or scattered thought, in which there is a lack of continuity often occurs early, while the progressive impoverishment of ideas regularly accompanies the course of the disease. Finally, hysterical patients are extremely egotistical.

The necessity of an early recognition of dementia precox become all the more apparent when one learns that the disease in the vast majority of cases has been in existence one or more years before the patient comes to the hospital, in which interval some have wandered from home and become lost to the family, others have developed alcoholic habits, or have acquired sexual diseases, conceived and given birth to children, or have committed criminal assaults, all of which might possibly have been

prevented. The honor of the family, the protection of society and the welfare of the patient demand more careful attention from the practitioner to this common mental disease.

DISCUSSION.

Dr. Keniston: No practitioner expects to get a full history of the patient whatever his specialty may be. So we in practice with the insane. We are compelled to depend upon the family physician for the history. An early history of these cases is very important. Members of the Society should study the history of each case and in many cases this would prevent the untoward occurrences mentioned in the paper. There is no other State where students have such advantages as here. The students of the Yale Medical School have better advantages than can be had anywhere else in the country. There are twelve clinics in the course of the season, held at the Asylum in Middletown.

SUGGESTIVE THERAPEUTICS.

J. M. KENISTON, M.D.,

MIDDLETOWN.

A. HISTORICAL AND INTRODUCTORY.

The above term, by many considered to be synonymous with hypnotism, or at least suggestion in some form, verbal, written or action, is the active principle of hypnotism. While the phenomena now classified under either of the above names have only been scientifically studied during the last sixty years, we are justified in inferring that they were recognized and utilized by the ancients thousands of years ago. The priests of Egypt were surpassed by Aaron and Moses in their influence upon the minds of the people. The fakirs of India, the magicians of Persia, the oracles of Greece, the seers of Rome; Peter the Hermit; the mystics of the Middle Ages; the ecstasies of the seventeenth century; the Hesychasts of Mount Athos, who remained motionless for days with their gaze steadily directed to the navel; the Tasko-drugites, who maintained statuesque postures for long periods with their fingers applied to the nose; the Dandins of India, who became cataleptoid by twelve thousand repetitions of the sacred word "Om"; the philosopher Socrates, who often stood motionless and mute for hours (once an entire day); all these, and many more whose names could be cited have consciously or otherwise employed suggestion or hypnotism on others, or on themselves (auto-hypnotism).

From time immemorial the strong men and women have dominated their weaker brethren—have sent them joyfully to death on the scaffold or to battlefields "where thousands die to lift one hero into fame"—have organ-

ized ill-judged crusades—have ruined uncounted thousands in visionary schemes—have changed the fortunes of nations, and have only during the present winter sent hundreds of ignorant Russian peasants on a terrible and hopeless journey in obedience to a supposed divine law. The names of Alexander, Caesar, Joan of Arc, Napoleon, and others will readily occur to us. In statecraft we think of Machiavelli, William the Silent, Disraeli, Blaine. This power exerted by the mind of a single individual over perhaps millions, most of whom never even saw him, differs only in degree, not in substance, from the influence exerted by hypnotism or suggestion. It was possessed in remarkable degree by Mesmer, whose vogue in Paris lasted from 1778 until the revolution, whose terrors eclipsed his career, as it did so many others. Those interested in the history of the subject should consult Myer's article in Tuke's Dictionary of Psychological Medicine, or Bernheim's Suggestive Therapeutics. We will merely allude to a few modern writers: Braid, of Manchester, who in 1841 produced hypnosis by setting his subjects to gaze fixedly at some bright object; James Esdaile, an East Indian surgeon, who in 1845-6 performed in all two hundred and sixty-one surgical operations in complete hypnotic unconsciousness, including injection of hydrocele, amputation of the thigh, lithotomy, etc.; Richet, Liebault, Charcot, and Bernheim, in France, the two latter founding schools which are still antagonistic both in theory and method; Forel in Switzerland; Heidenhain, Binswanger and Moll in Germany, Hamilton Osgood, Russell Sturgis, and Morton Prince in America; and many physicians in Belgium, Holland, Italy, Sweden, Russia, etc. Societies for psychical research or experimental psychology, including hypnotism in their programme, have been established at Paris (1883), at Boston (1885), at Munich (1886), at St. Petersburg and Moscow (1888), at Vienna, Rome and elsewhere, and at least two Congresses, the last at Paris

in 1899, have minutely discussed the question, "hence there is little chance that hypnotism will be allowed to fall out of notice."

"The Journal of the American Medical Association has an article attempting to show that hypnotism has had its day, or at least is confined to irregulars. This is a rather curious statement to make, if one measures the interest of a medical topic by the number of articles written about it. There are few subjects about which German physicians are writing more monographs at present, or in which they seem to take a more active interest. The sensational side of hypnotism is dying out, but a certain practical side represented by the word "suggestion" has undoubtedly come to stay, and to be used in therapeutics."

B. DEFINITION.

Bernheim defines hypnotism "as the induction of a peculiar psychological condition which increases the susceptibility to suggestion. Often, it is true, the sleep that may be induced facilitates suggestion, but it is not the necessary preliminary. It is suggestion that rules hypnotism."

He defines suggestion "in its widest sense as the act by which an idea is introduced into and accepted by the sensorium." Charcot says: "Hypnotism is an artificially produced morbid condition—a neurosis—and suggestion, as we understand it, is nothing else than a pathological phenomenon; it is a symptom, and nothing more; it no more constitutes hypnotism than rattling in the throat constitutes pneumonia." Gould defines hypnotism "as a state of artificial somnambulism, and suggestion as the artificial production of a certain psychic state in which the individual experiences such sensations as are suggested to him, or ceases to experience those which he is instructed not to feel."

1. Editorial N. Y. Med. Record, Vol. 48, p. 775, 1895.

C. METHODS OF PRODUCING HYPNOSIS.

Inasmuch as the schools of Bernheim and Charcot differ so diametrically in their theory of hypnotism and suggestion, it is natural that their methods should be equally diverse. Let us briefly describe them, carefully avoiding, however, the prejudices and resultant hostilities which have arisen among the mercurial Frenchmen, and assuming a purely judicial attitude, if possible.

Charcot and his school adopt either the method of Braid, which consists in fixing of the eyes on a bright object placed a little above the eyes opposite the middle line of the forehead, so that visual fatigue quickly follows, the eyes being directed in convergent strabismus; or Lasagne's method of light pressure on the eyeballs with the fingers, in the first seances; later on using a jet of electric light, or a blow on a gong struck close to the ear of the person to be hypnotized. There also sometimes exist special regions on the surface of the body—Zones hypnogenes—analogous to the zones hysteriques, which it is sufficient to press in order to induce sleep (Pitres). Somnambulism is produced by a slight friction to the vertex with the palm of hand or tips of fingers. In persons who have been hypnotized a number of times three states appear, which Charcot calls catalepsy, lethargy, and somnambulism. Their chronological development varies according to the individual, but catalepsy is usually the first. During the catalepsy the subject remains motionless, with eyes wide open, *flexibilitas cerea* is present, limbs retaining the exact position in which they have been placed; the pulse is lowered, the breathing becomes superficial, and there is absolute insensibility to cutaneous impressions, as well as a remarkable aptitude to accept certain suggestions. This state entails very considerable fatigue, the face is injected, tears flow, and hence should not be prolonged.

Lethargy can be induced by prolonging a little the time of fixation of the bright object, or by closing the

eyes of the cataleptic. The vital functions are not affected, but intelligence seems completely abolished. The subject does not answer questions, but he may often receive suggestions which will realize themselves when awake; he is, in short, plunged into the most complete coma, including complete insensibility to pain. Lethargy may be prolonged from one to twenty-four hours without injury. It presents one phenomenon of great importance—neuro-muscular hyper-excitability,—hard compression of a superficial nerve causes intense contraction of the muscles it supplies; they become rigid, stiff, and would break sooner than unbend.

Somnambulism is more difficult to produce from the outset than either catalepsy or lethargy, but is easily induced by transformation from one of the others, by slight friction of the vertex. "If in a lethargic state, the subject generally sighs, indicating his return to at least partial consciousness, his brain becoming like soft wax upon which all impressions and suggestions from the experimenter will engrave themselves." The muscles now contract on light pressure, or even pass close to the skin. There are two great classes of somnambulists, the tranquil and the agitated. In the first the eyes are almost closed; in the second they are wide open. In both classes there is great susceptibility to suggestion; but the somnambulist is not entirely a passive being; his credulity has its limits; he cannot be induced to commit an actual crime, although he might do so if plunged into hypnotic lethargy. In medico-legal medicine there is not a single case where a somnambulist has acted criminally under the influence of suggestion. Subjects can easily be awakened from any of the hypnotic states by lightly blowing on their eyes, when they come out of their sleep a little stupefied, and without any recollection of what happened to them during the hypnotic condition.

Bernheim says: "Therapeutic suggestion is not new.

What is new is the method of applying it methodically, and its final (sic) adoption in general medicine. All the ancient and modern proceedings, the baquet of Mesmer, the tree of Puysegur, the passes and manipulations, the staring at a bright object as practiced by Braid, the revolving mirror of Luys, etc., may be reduced to one factor—viz.: the endeavor to make an impression on the subject and induce in his sensorium the idea of the phenomenon which we desire to obtain, namely, sleep. The best and simplest method is speech. In very susceptible subjects a simple word is sufficient; in most, however, it must be enforced by gestures, by a firm manner of address, by gentle or strong insinuation, by the operator fixing the subject's eyes or closing his eyelids, and by direct command.

The idea may be transmitted directly by the suggested speech, or it may be created by the brain in consequence of an impression received—indirect suggestion.”

He establishes the following stages of the hypnotic condition:

1. With persistence of memory.
 - a. Torpor, somnolence or partial suggestibility (of heat, cold, etc.)
 - b. Inability to open the eye spontaneously.
 - c. Catalepsy (by suggestion) with possibility of breaking it.
 - d. Irresistible catalepsy.
 - e. Muscular contractions and analgesia (by suggestion).
 - f. Automatic obedience.
2. Hypnotic conditions with sleep and amnesia on awaking.
 - a. Amnesia on waking, absence of hallucinations.
 - b. Hallucinations during sleep.
 - c. Hallucinations during sleep, as well as post-hypnotic hallucinations and suggestibility in the awake condition.

Every one of these stages shares the symptoms of the preceding ones, and the classification is purely schematic. Every subject has his special susceptibility.

The subject to whom sleep has been suggested rests usually with eyes closed, the lids often tremulous; he is mostly inert like an ordinary sleeper, except when he is made to act. Respiration and pulse are seldom altered, and then only by emotion, which is easily suppressed after one or two sittings. The subject is never unconscious; he hears everything that is said, and can always be made to talk. Catalepsy is always suggestive, and may be flabby, waxy or tetanic. Analgesia and anesthesia may be spontaneous, due to the fact that the nervous force is concentrated in the brain and detracted from the periphery, or may be suggested, or may be absent. Illusions and hallucinations may be present or suggested. Criminal suggestions may be acted upon, not only in the so-called laboratory experiments, but in actuality, and even by an honest man.

After a careful study of over one thousand two hundred articles on hypnosis and suggestion during the past month, the writer accepts the views and methods of Bernheim as most consonant with the results obtained and the views of a very large majority of the eminent investigators of the subject—as Kraepelin, Forel, Bramwell, Osgood, Sturgis, and others. Many recent authors consider it sufficient to induce only a very slight degree of drowsiness, or even none at all—simple fixation of the attention and voluntary co-operation on the part of the patient being sufficient, after he has been fully instructed as to the reasons for and the benefits expected from the treatment.

D. RESULTS OBTAINED BY THE USE OF SUGGESTION AND HYPNOSIS.

Bernheim says: “Although suggestion, or psychotherapeutics, as it has been well termed by Hack Tuke, may, through the vasomotor nerves, produce remarkable

modifications, as redness, blisters, stigmata, etc., suggestion employed therapeutically is almost exclusively functional in its action. It is of service especially in certain neuroses when there is no organic change, or when the latter is produced by a functional disorder; hysteria, chorea, spasms, tetanus, nervous vomiting, nervous pains, arthralgia, visceralgia, and neuralgia. It is often useful in organic disease when functional disorder accompanies, supervenes upon the lesion, or underlies it, or when the dynamical disorders surpass those of the organic lesion. In this manner it sometimes cures chronic articular pains, and by suppressing the pain and re-establishing the articular movements and the muscular play, it restores the function, and thus also the organ. Suggestion often cures hemianesthesia, and sometimes even paralysis of cerebral origin when the seat of the lesion does not make it incurable; it often brings about remarkable improvement in myelitis, ataxy, disseminated sclerosis, etc. It may diminish oppressive sensations in diseases of the chest; it may restore the appetite and favorably influence tubercular affections by modifying the soil affected."

It will be most practical, in the limited time at our disposal to give brief abstracts of the results obtained by hypnosis or suggestion by some native and foreign physicians, and to facilitate this purpose I have somewhat arbitrarily made the following classifications:

- a. Organic diseases.
- b. Puerperal and menstrual disorders.
- c. Miscellaneous.
- d. The eye.
- e. Surgery.
- f. Nervous disorders—neuroses.
- g. Psychiatry.
- h. Medico-legal.

From the results of my reading I shall endeavor to present fairly the claims of the opponents as well as the advocates of suggestion.

A. ORGANIC DISEASES.

1. Bernheim² reports minutely ten cases of organic disease of the nervous system, including cerebral hemorrhage, traumatic epilepsy, diffuse rheumatic myelitis, etc., with seven cures, two cases improved, and one not cured; four cases of gastro-intestinal affections, with two cures, and two cases improved, and nineteen cases of rheumatic affections with seventeen cures and two cases improved.

2. Hamilton Osgood³ reports a case of sclerosis of the cord, with spastic paraplegia (diagnosis verified by autopsy, and confirmed by Dr. J. J. Putnam) where after four years duration suggestion, inducing merely the first degree of somnolence, effected marked improvement, so that the patient was able to walk, and even go up and down stairs. This remained up to her death a few years later from pyelonephritis. He also reports two cases of paraplegia cured by suggestion, a case of paralysis of tongue cured, and one case each of hemiplegia and paraplegia which were greatly benefited.

B. SUGGESTION IN PREGNANCY AND LABOR.

Dr. Louis Lichtstein⁴ said there were only three normal conditions in pregnancy in which suggestive therapeutics was useful, viz.:

1. Pernicious vomiting.
2. Anorexia, and
3. Abnormal craving for particular unpalatable or disgusting foods or substances.

During labor suggestion can often supercede the use of

2. Suggestive Therapeutics, pp. 404-407.

3. Boston Medical and Surgical Journal, Vol. 133, pp. 32 and 40.

4. N. Y. Med. Record, Vol. 54, p. 27.

anesthetics. In forty-six cases of labor there were nine failures, in eleven cases superficial sleep, in fifteen cases deep sleep, and in ten cases very deep sleep with perfect amnesia, while one patient remained awake, but felt absolutely no pain. The conditions of the puerperium which might be affected favorably by suggestion were after-pains, lactation, hyperperistalsis, puerperal paralysis, and puerperal mania. An excessive flow of milk could often be promptly checked by suggestion.

Dr. E. H. Martin⁵ says, "I performed podalic version while pains were entirely suspended by means of suggestion. At all times during the labor I could control the pains, increasing or diminishing their severity."

Osgood and Mesnet have also used hypnotism successfully in labors. Gascord says⁶ "In labor it must be carried to a profound degree."

C. SUGGESTION IN MISCELLANEOUS DISEASE.

Dana says:⁷ "Suggestion is applicable to neuralgias, neurasthenias, hysterical, convulsive and paralytic troubles, alcohol and morphine habits, amenorrhea, rheumatic troubles, etc. The doctrines of Bernheim are far more correct than those of Charcot."

Dr. H. M. Folkes says:⁸ "Hypnotism is a sure preventive, a powerful palliative or a possible cure of seasickness."

Dr. Hamilton gives⁹ brief abstracts of thirty-four cases cured or relieved by suggestion, including three of acute bronchitis, two each of dyspepsia, sore throat, and constipation, one each of seasickness, knee-strain, headache, delayed menses, neuralgia, hysteria, and torticollis.

Dr. Jakov V. Rybalkin of St. Petersburg,¹⁰ made some

5. N. Y. Med. Record, Vol. 58, p 172, 1900.

6. Boston Med. & Surgical Journal, Vol. 124, p. 305, 1891.

7. Medical Annual, 1889.

8. N. Y. Med. Rec., Vol. 51.

9. Boston Med. & Surg. Jour., Vol. 122, p. 441, 1890.

10. Boston Med. & Surg. Jour., Vol. 123., p. 333, 1890.

remarkable experiments, confirming the statements of pica salmns, Focachon, Beaunis, Defboenf, Forel, Jendrasik, and Kraft-Ebing, that cutaneous blisters can be easily raised by hypnotic suggestion.

Dr. J. M. Creed reports ¹¹ a case of spasmodic asthma markedly relieved by suggestion. Patient has occasional modified attacks of dyspnea, so that he is now provided with a written order "to sleep when he reads it, and to awake after five minutes breathing freely." This he always carries and says it never fails him.

Dr. Creed also reports ¹² a case of neuralgia, and one of persistent insomnia cured by suggestion.

Dr. R. O. Mason reports ¹³ cases of disorders of digestion, assimilation, absorption, circulation, lactation, and menstruation cured by suggestion, as well as a case of inordinate and excessive blushing. (Two sisters and a niece had also suffered from the same trouble.) He also reports a case of puerperal fever.

Dr. J. J. Putnam treated, through an assistant, a boy with incontinence of urine and feces, with excellent results.

D. EYES. ¹⁴

In the Medical Record of Aug. '95, Dr. J. Arthur Booth has a paper entitled "Hysterical Amblyopia and Amaurosis—Report of five cases treated by Hypnotism." He says that defective vision is one of the less common diseases that hysteria is capable of simulating. Amblyopia and narrowing of the field of vision occurs more frequently than amaurosis. The onset of the disturbance is usually sudden, generally following some shock, mental or physical. On examination of the eye there is a spasmodic contraction of the orbicularis muscle and

11. Boston Med. & Surg. Jour., Vol. 130, p. 350, 1894.

12. N. Y. Med. Journal, Vol. 69, p. 391, 1899.

13. Journal Nerv. & Mental Dis., Vol. 27, p. 441, 1900.

14. Abstract by Dr. S. Edith Ives.

closure of the eye. The pupils are equal and react readily. The media, lens, vessels and fundus are normal. Question the patient and she complains of poor vision, painocular or supra-orbital and great sensibility to light. There may be absolute loss of sight generally in one eye—or only amblyopia and a reduction in the field of vision to a small area around the fixation point.

Dr. Booth reports five cases,¹⁵ I picked out three of them.

Case I. Kate I., age eighteen years, nervous girl. For six months has been very depressed and emotional. One month ago she noticed failure of vision and at times becoming entirely blind—this latter condition lasting only a few seconds. Any attempt to examine the eyes caused spasmodic closure of the lids—both pupils moderately dilated and react normally. Vision is poor and fields are contracted—otherwise the eyes seem to be quite normal. The treatment by suggestion was commenced and after twelve seances the patient was discharged with normal fields and vision fully restored.

Case II. Fannie T., age thirty-eight, married. Has been quite well until one month ago, when she became depressed. Three weeks later complained of pain in the O. S. with blurring of vision, which gradually increased until there was complete blindness—no vomiting, diplopia or vertigo. Examination reveals complete loss of vision in O. S. Pupil normal in size and active. Ophthalmoscope reveals no change in media, disk, or vessels. The patient was easily hypnotized and after five seances the vision became entirely restored.

Case III. This is also a case of monocular blindness, but it did not respond to treatment by suggestion or any other treatment. The patient, a girl of fourteen, had a history of a fall eighteen months previous to examination. Her symptoms were headache—frontal and occipital—dimness of vision. Examination revealed almost

15. N. Y. Med. Record, Vol. 58, p. 173, 1900.

total loss of vision in O. S. but no change in media, disk or vessels. There is marked loss of sensation of the cornea of the right eye, but no anesthesia of face, body or extremities. The question of simulation was considered but repeated tests by prisms and other means gave negative results. In discussing the Prognosis and Diagnosis Dr. Booth says, if the condition of simulated defective vision should persist for any length of time, and an alteration of nutrition or any morbid process be set up by the prolonged functional disturbance, then it is probable that finally the condition would change into an amaurosis from inflammation and congestion, which probably did occur in Case III. The only difficulty in diagnosis exists in those cases where a line must be drawn between true simulation and an hysterical blindness, that is, one having an actual existence in the imagination. It is not that they will not, but they cannot will. The retina receives the impression, but through some fault of the higher cortical centers, perhaps by inhibition, the patient remains unconscious of it. In considering the treatment by hypnosis Dr. Booth calls attention to the fact that the fixation method is the one generally employed.

E. SUGGESTION IN SURGERY.

Dr. Martin says: "In minor surgical operations anesthesia can often be induced by suggestion, and an abscess evacuated, a tooth extracted or filled, or a few stitches taken painlessly. I have amputated a thumb during complete anesthetic hypnosis."

Dr. E. Lamphear¹⁶ operated on one case of double talipes, effecting a sufficient degree of anesthesia at the first seance, contrary to the generally accepted idea.

Dr. Shaw, in an operation lasting an hour, trephined and removed a brain tumor causing Jacksonian epilepsy, the patient being simply hypnotized.

16. Boston Med. & Surg. Jour., Vol. 123, p. 447, 1890.

Dr. Schmelz,¹⁷ of Nice, under hypnosis alone, removed a breast and operated for ectropion of the left lower eyelid.

F. NERVOUS DISORDERS.

Prof. H. C. Wood,¹⁸ after some study in Paris tried hypnosis without suggestion on two cases; one with tremors simulating paralysis agitans, and one of paraplegia. In the first case the woman was a good subject; the tremors continued during the sleep, but the second treatment was followed by great lessening of the tremors and four seances sufficed for a cure. In the second case the paraplegia was almost completely associated with irregular patches of anesthesia on the legs, absolute loss of the patellar reflexes, and great complaint of weakness and numbness in the arms. The woman did not appear hysterical, but a diagnosis of hysterical paraplegia has been made by Dr. Dercum. After the second seance the numbness disappeared from the arms, "after the third the woman was able to stand; after the fifth she could walk; after eight treatments she was able to walk long distances, to stand very well on one leg, and was about to leave the hospital as cured, although her knee-jerks had not returned." Dr. Wood does not commit himself to any theory as to the method in which hypnosis produces cure, but cannot see why all the effects cannot be accounted for on the theory of mental influence. For the exertion of this influence the physician need not speak to the patient specifically about his or her case; especially is this true at the Paris and Nancy clinics since the whole atmosphere is heavy with faith. The elements of profound mental impression are all present, and it needs no words of the physician to bring them into action.

Hamilton Osgood:¹⁹ Functional paraplegia and hemi-

17. N. Y. Med. Journal, Vol. 69, p. 887, 1899.

18. Amer. Jour. Med. Sci., Vol. 99, p. 286.

19. Boston Med. & Surg. Jour., Vol. 122, p. 446, 1890.

anesthesia, result of fall; legs absolutely flaccid and powerless; leg muscles scarcely perceptible. Great improvement after ten sittings; later patient could walk.

Osgood also reports²⁰ cases of paralysis agitans, of tremor of hands, of chorea (4), of stammering (3), with either cures or marked improvement.

Dr. J. J. Putnam,²¹ case of hysterical aphonia, and two cases of almost hysterical ptosis cured by suggestion.

Morton Prince²² says habit neuroses are cured by suggestion, but not easily.

Douglas Graham²³ uses suggestion for insomnia, pain and constipation, and reports a cure of psoriasis by same means.

Louis Lichtstein:²⁴ Functional neuroses of all kinds are favorably influenced by suggestion. So also, nervous disorders of writers and artisans, nervous asthma, neuralgias, especially of the fifth pair; insomnia, etc.

Russell Sturgis reports²⁵ cases of "brain-fag" or psychasthenia with following results:

Class A. with mental symptoms prominent. Thirty-one cases, with twenty successes and eleven failures.

Class B. with physical symptoms prominent. Twenty cases, with eleven successes and nine failures.

Terrien²⁶ had a number of cases of hysteria which had resisted other treatment, but yielded promptly to hypnotism, or to suggestion, but failed in cases where chorea, neurasthenia, muscular atrophy, etc., were associated with hysteria, they persisting after cure of the hysterical symptoms, as also in nervous and other disorders not dependent on hysteria.

There are many cases of hysteria cured or relieved by suggestion which we have not time to quote.

20. *Ibid.*, Vol. 123, p. 32, 1895.

21. *Boston Med. & Surg. Jour.*, Vol. 146, p. 116, 1902.

22. *Ibid.*, p. 116.

23. *Ibid.*, p. 120

24. *N. Y. Med. Record*, Vol. 49, p. 641, 1896.

25. *N. Y. Med. Record*, Vol. 55, p. 274, 1899.

26. *Amer. Jour. Insan.*, Vol. 50, p. 575.

G. PSYCHIATRY.

²⁷ "In recent years the astounding data of suggestive influence in hypnosis has opened a very alluring prospect for the psychic treatment of insanity. When one succeeds in this way in obtaining an almost absolute domination over the perceptions, thoughts, and will of a man, not only momentarily, but even for a long time, and even without his knowledge, such a method can hardly receive adequate appreciation from the psychiatrist, on whom depends the removal of morbid symptoms in all those fields. Unfortunately, however, these expectations have thus far been only slightly justified. It is usually easy to subject sane people to hypnotic influence, and thus relieve them of every possible pain and discomfort, while insane patients mostly prove inaccessible to it, since the force of suggestion is evidently less than in normal conditions, apparently on account of frequent disturbances of attention and vivid auto-suggestions. For these same reasons it is not only more difficult to hypnotize the insane, but the physician's influence is almost never as efficacious and tenacious. For instance, it is not possible to eradicate in hypnosis, well-rooted delusions, which we may regard as auto-suggestions to a certain degree. On the other hand illusions and disturbances of appetite and sleep seem to be amenable to hypnotic treatment to a certain degree. Similarly many a complaint that arises from the deprivation of alcohol or morphia may be removed with surprising ease; and besides that the command of the hypnotizing physician becomes a correspondingly powerful though invisibly ally in the fight against the deeply rooted appetite.

We naturally first turn to the application of suggestion to those forms of insanity in which, according to experience, psychic agencies play a dominant role in the disease picture—in hysterical and neurasthenic disturbances. Here undoubtedly it is occasionally possible to

27. Kraepelin, *Psychiatrie*, Vol. 1, p. 329, 1899.

obtain surprising results, as we learn from the show cases of the "magnetic cure"; on the whole, however, hypnotic treatment seems to be of special benefit in those forms of these diseases in which, in contra-distinction to the nervous troubles, the real psychopathic symptoms stand in the background.

Here, moreover, hindering auto-suggestions frequently occur, and there is always danger of developing auto-hypnotic conditions, although I am convinced that this danger can be completely avoided by great skill and appropriate methods of technique on the part of the physician.

In the remaining forms of the insanity of degeneration, especially in the states of fear, and in compulsive insanity, permanent results can be obtained only now and then, and only with the utmost patience, while the results are usually transitory. Moreover, the contrary sexual instincts which have hitherto been deemed incurable, have in recent years been treated by suggestion with some benefit.

But if the working sphere of hypnotic influence in mental diseases be considered, even to-day, as very limited, as might naturally be expected, still, from the results already obtained the alienist should be forcibly impelled to familiarize himself with this method of cure, even if it be only to prevent trouble from the use of unsuitable or improper methods. The most appropriate and least dangerous of the methods thus far known is undoubtedly that of verbal suggestion, as practiced by Bernheim and his disciples. For its complete comprehension a study of his work is essential, the more so, as the entire procedure lays great responsibilities on the personal ability and presence of mind of the physician, and therefore can be acquired in detail only by study."

The latest writings on this subject are found in the Reference Hand Book of Medical Sciences, Vol. 5, 1902, Section on Insanity.

Dr. Theodore H. Kellogg says: "Hypnotism is not recommended in any class of cases, but therapeutic suggestion by the physician, seconded by nurses, may favorably influence the thoughts and conduct of patients, and likewise placebos are of occasional advantage in mental therapeutics." (p. 74).

Dr. William A. White says: "Hypnotism may be of some value in cases (of chronic alcoholism) which exhibit a marked hysterical diathesis." (p. 84).

Dr. William E. Fisher says: "Hypnotism is of value (in Hysterical Insanity) but it should be borne in mind that its use is apt to establish an undesirable dependency of the patient upon the physician. In mild cases suggestive therapeutics is of value in overcoming individual hysterical symptoms, such as paralyses, sensory disturbances and tremors." (p. 98).

Dr. A. R. Defendorf says: "Hypnotic suggestion may help in relieving insomnia and imaginary complaints" (in Circular Insanity). (p. 130).

"In hypochondria one may depreciate the alleged sufferings by the aid of suggestive therapeutics. Indeed this method of treatment offers the greatest hope for permanent improvement." (p. 131).

"In compulsive and impulsive insanity treatment is limited to physical and mental training, and suggestion. The value of suggestion and hypnosis has been questioned by some who hold that these psychoses are absolutely incurable. There is, however, no doubt that suggestion is of value in those cases occurring during acquired neurasthenia, or during convalescence from acute diseases in which degeneracy is not so prominent a factor." (pp. 133-4).

Defendorf also says, in the article on Contrary Sexual Instincts: "Treatment is more hopeful in acquired homosexuality, in which masturbation plays such an important part. Here, besides attempting to improve the general nervous condition, and the establishment of a

routine in the physical and mental life, an effort should be made to dispel the homosexual feelings and impulses by means of hypnotic suggestion. This is first directed against the increased sexual excitability and masturbation, next against the insensibility of the patient towards the opposite sex, and a tendency to heterosexual intercourse. The hypnotic influence is acquired slowly." (p. 134).

Russell Sturgis has an interesting paper ²⁸ on the "Use of Suggestion during hypnosis of the first degree, as a means of modifying or of completely eliminating a fixed idea, with illustrative cases."

Hamilton Osgood ²⁹ failed to remove a fixed idea in a woman of sixty-three, who at the second sitting considered it a sin to be hypnotized. This, of course, was a counter-suggestion and it was immovable.

Dr. George M. Robertson, at that time senior assistant to Dr. Clonston at Morningside, published an article on "The use of hypnotism among the insane" in the *Journal of Mental Science*, January, 1893. He used practically Bernheim's method, after some study in the wards of the Charité, Paris (Lévy), the Salpêtrière (Voisin) and Nancy. He concludes that hypnotism has a sphere of usefulness among the insane. His most satisfactory results were obtained in some cases of extreme maniacal excitement, without mental confusion or incoherence, in which he succeeded in putting the patients to sleep, or in inducing them to take hypnotics voluntarily, to which, in the waking state, they made the most determined resistance. A large proportion of insane are refractory to hypnosis. He summarizes the indications for its use as follows:

A. As a direct therapeutic agent.

1. In insomnia.

2. As a sedative in excitement.

28. *N. Y. Med. Record*, Vol. 45, p. 193, 1894.

29. *Boston Med. & Surg. Jour.*, Vol. 122, p. 445, 1890.

3. To dispel fleeting delusional states and the minor psychoses.
- B. For purposes of management.
1. To overcome the morbid resistance of patients for their own benefit, as taking food, medicine, rest, etc.
 2. As a substitute for restraint.

Robertson found a certain class of comparatively sane epileptics very susceptible to hypnotism in the inter-vallary periods, dispelling pains, confusion, dullness, etc. He insists that suggestions should be very clear, simple, and precise to avoid trouble. He once told a woman whom he relieved of rheumatic pains that on awaking she had to run up and down the hall, meaning by this only once. She, however, ran up and down for several hours."

Dipsomania, alcoholism, and the various psychoses developing on an alcoholic basis are by many considered to be peculiarly susceptible to benefit from suggestion, and I have found a record of many alleged cures, or great improvement, e. g. Rybakow, Mason, Osgood, Florel.

1. Milne Bramwell, in an interesting article in *Brain* for 1899, Vol. 22, p. 141, gives a list published by Florel in 1891 of the following diseases which responded best to hypnotic treatment. All forms of hysteria, including hystero-epilepsy, neurasthenia, psychical impotence, sexual perversions, alcoholism, morphinism, nocturnal terrors of children, chorea, enuresis, insomnia, headache, neuralgia, stammering, nervous dyspepsia, constipation, anorexia, menstrual disorders, chronic muscular and articular rheumatism, to which Bramwell adds "vicious and degenerate children," nervous "tics," masturbation, and blepharospasm, (Berillon); obsessions (Liebault, Schrenck-Notzing, Mavokakis, etc., etc.) and insanity. (Voisin, Repond, Robertson, Woods, Smith, and Myers (Bethlehem). The entire article will well repay perusal.

Bernheim says ³⁰ that suggestion "is powerless, so far as our experience extends, against mental alienation; there the auto-suggestions are predominant."

E. MEDICO-LEGAL RELATIONS OF HYPNOTISM AND SUGGESTIONS.

The question naturally occurs, in view of the remarkable results obtained in some cases, "is it possible for crimes to be committed under hypnotic influence?" This question is answered in the affirmative by Bernheim and the Nancy School, while Charcot and the Salpêtrière School maintain that little danger is to be apprehended from this source. Gilles de la Tourette says rape is the only crime thus far accomplished with the aid of hypnotism under the form of lethargy.

Per contra Brouardel, in a report ³¹ to the French government presents striking facts to substantiate the view that hypnotism, in the hands of unscrupulous performers, may be made a powerful instrument of crime. In the celebrated Eyraud Bompard trial (December, 1890,) in which one of the defendants claimed irresponsibility on account of being under hypnotic influence, the jury did not allow the plea. Eyraud was guillotined and Gabrielle Bompard was sentenced to twenty years penal servitude.

In 1894 a Kansas farm hand named Macdonald murdered Thomas Pelton. His defence was that he had been hypnotized by Pelton's enemy, Gray, and compelled to commit the deed. The jury acquitted Macdonald and adjudged Gray guilty of murder in the first degree. Verdict set aside by the Supreme Court, and a new trial ordered. ³²

In 1896 the Russian Court of Appeals commuted the sentence of death imposed upon a girl to five years im-

30. Tuke's Dict. of Psychol. Med., Vol. 2, p. 1217.

31. Boston Med. & Surg. Jour., Vol. 124, p. 73, 1891.

Boston Med. & Surg. Jour., Vol. 125, p. 385, 1891.

32. Boston Med. & Surg. Jour., Vol. 132, p. 67, 1895.

prisonment, on the ground that she was hypnotized. The evidence showed that the girl was completely under the control of a man who compelled her to poison her father.³³

In 1895, a man and wife were tried in France for repeatedly hypnotizing a widow and causing her to live in a perpetual state of hysterical ecstasy until her death, a few months after that of her husband, when it was found that the man had obtained a power of attorney over her entire wealth.³⁴

In Hamburg a man repeatedly hypnotized his wife, whom he had insured for a large sum, and suggested to her to commit suicide after two months, and to keep his command secret from every one. The woman complained of terrible hallucinations, driving her to suicide, and finally consulted a physician, who easily hypnotized her, and after many sances induced her to divulge the above.³⁵

An English lawyer reports³⁶ a case of a wealthy man, who for months previous to his death had associated continually with a physician, who tried various hypnotic experiments upon him. His sudden death caused a double shock to his relatives when they found that the doctor had been made executor and chief legatee of the patient's will.

In Nebraska a man was convicted of murder, the principal witness against him being the wife of his victim, whom, as well as his own wife, he had killed in order to marry witness. The case was appealed on the ground that the accused was not permitted to enjoy his constitutional right to be confronted with his accusers, the woman being heavily veiled. The prosecutor stated that this was necessary, as three doctors asserted that

33. N. Y. Med. Record, Vol. 49, p. 180.

34. N. Y. Med. Record, Vol. 47, p. 763.

35. N. Y. Med. Record, Vol. 52, p. 400, 1897. Copied from **British Med. Journal**.

36. N. Y. Med. Record, Vol. 57, p. 87, 1900.

the woman was under the hypnotic influence of the prisoner to such an extent that she could not testify while facing him. This case affords a grand opportunity for the production of contradictory medical expert testimony.³⁷

Sidney Kirk has an interesting paper on *The Medico-Legal Aspect of Hypnotism*, too long to be abstracted, in the *American Journal Medical Sciences*, Vol. 116, p. 666, 1898. He quotes adverse opinions from Gower, Grasset, Rayner, Benedikt, and many others.

REGULATION OF THE PRACTICE OF HYPNOTISM.

In Russia not only must the hypnotizer be a physician, but a hypnotic seance cannot be held except in the presence of other physicians, and he must notify the "local administrative authorities"—the police, in other words—of his intention to hypnotize a patient, giving the date, hour, and names of the medical witnesses. Public performances are absolutely prohibited except in clinics or hospitals, and only before physicians and students. A careful press censorship is also exercised over all works on hypnotism accessible to the lay public.

In France the use of hypnotism as a therapeutic measure is prohibited in the military and naval hospitals. In Belgium all public exhibitions of hypnotism are prohibited; the practice of hypnosis on girls under the age of eighteen years is made punishable by fine and imprisonment; and the only legal uses of hypnotism will be medical and therapeutical. 1891.

I have found no laws against hypnotism in the United States, but in 1896 the Maryland Lunacy Commission recommended that public exhibitions be prohibited. A similar recommendation was made by the British Medical Association in 1893.

Clevenger³⁸ reports the case of a man who was hanged for murder at St. Paul, Minn., in 1895. He induced

37. N. Y. Med. Record, Vol. 57, p. 504, 1900.

38. Med. Jurisprudence of Insanity, Vol. 2, p. 1192.

A. by suggestion to kill B. A. was sentenced to penitentiary for life.

Witthans and Baker report ³⁹ several cases of rape.

F. DANGERS OF HYPNOTISM.

Sidney Kirk warns against the indiscriminate use of hypnotism, which he regards as a pathological condition, symptoms being of short duration, while others are permanent, more particularly after prolonged and frequent use. He quotes:

1. British Medical Association.—“Dangers may arise from want of knowledge, carelessness, or intentional abuse, or from too continuous repetition of suggestion in unsuitable cases.”

2. Henry Rayner—“There is risk of mental deterioration—and the habit for those of neurotic diathesis should be labelled ‘Dangerous—this way madness lies.’”

3. Prof. M. Benedikt of Vienna—“Hypnotic experiments have a demoralizing influence on the intellect, will-power, and psychical independence of the patient.”

4. Norman Kerr found after-effects to be a mental disturbance, a dissipation of energy, and a nerve exhaustion—a frequent repetition (of hypnotism) being apt to cause deterioration of brain-function and nerve function, intellectual decadence, and moral perversion.

5. Germain See—“It especially favors and develops tendencies to hysteria.”

Kirk also quotes Gowers, Mendel, Meynert, and others along the same lines, and records ⁴⁰ also four deaths from hypnotism, and concludes that hypnotism should be used only when other modes of treatment and suggestion have failed, and that the dangers lie much more in its use for experimental and therapeutical than for criminal purposes.

39. Vol. 2, p. 452.

40. Amer. Jour. Med. Sci., Vol. 116, p. 666, 1898.

Dr. W. R. Newbold says:⁴¹ "The most common and serious danger is that of producing increased and abnormal susceptibility to the hypnotic state. Careless or accidental suggestions are a real danger and should be guarded against."

Simulation of death, and burial for several days, by self-induced hypnotism needs only an allusion.

Spitzka and Sir Andrew Clarke recognize the dangers liable to occur from the abuse of hypnotism.

Per contra Dr. J. Milne Bramwell says:⁴² "As far as my experience goes the employment of hypnotism by medical men who are acquainted with the subject is absolutely devoid of danger. I have hypnotized hundreds of persons of both sexes, and of all ages from early childhood upward, occasionally repeating the process almost daily for months. Some of these cases were actually insane, while in many the mental condition was far from stable. I have never seen any unpleasant or evil after-effects, either mental or physical, even of a trivial nature."

Most authors agree with Bramwell.

CONCLUSIONS.

To-day few doubt the reality of hypnotism, or that hypnotic sleep may be produced by all stimuli capable of causing fatigue, whether this is caused by stimulation of sight, hearing, taste, smell or touch. Neither can we doubt that some danger may occur from the injudicious, unskillful, or unauthorized use of hypnotism, nor that all public exhibitions should be prohibited. While some eminent physicians and psychologists have pronounced against its use, the large—very large—majority commend its proper use, chiefly in the way of suggestion, after the Nancy School, and using, if at all, only the lighter degrees of hypnosis, as a rule, and using

41. Amer. Jour. Insanity, Vol. 52, p. 90, 1895.

42. N. Y. Med. Record, Vol. 54, p. 789, 1898.

verbal suggestion, sometimes supplemented by gentle closure of and pressure on the eyelids, or a few passes, or both.

Suggestion has an increasingly wide field of application, as it becomes better understood, not only in the neuroses and psychoses—hysteria, neuralgia, alcohol and drug habits—etc., etc., but in general physical diseases, especially of a functional nature, although many concomitant and often distressing symptoms of organic diseases have been benefited, and some ardent enthusiasts believe that even tissue lesions may be cured. Contrary to Bernheim and a few others, the writer believes that suggestion, often practiced unconsciously, has a great sphere of usefulness in psychiatry, not alone in controlling excitement, remedying bad habits, relieving pain, and causing sleep, but in combating fixed ideas, and in some cases dispelling hallucinations and delusions.

In closing I will mention briefly a few practical but essential points to be kept in mind.

1. The hypnotizer (or suggestor) should be absolutely disinterested, and eager to help his patient.

2. He should obtain all possible knowledge of both the mental and physical condition of the patient, and have a clear idea of just what he expects.

3. In making his suggestions he must absolutely concentrate his attention upon his object, excluding all outside impressions.

4. He should be at the time in good physical condition—fresh, calm, energetic, even intense, but deliberate.

5. He should simply, but clearly explain to his patient what he is about to do, and why. Suggestions should be clear, precise, simple.

6. He should not expect to succeed at the first seance in every case, but should persist for several sessions,

remembering that there are many grades of susceptibility; persistence and patience, and again persistence are the requisites of success, if success is to be had.

7. Some patients are inaccessible to suggestion.

8. It is essential to have a third party at all seances, especially if the subjects are women.

9. The patient should, if possible, endeavor to co-operate with the hypnotizer—should assume a receptive attitude, and endeavor to concentrate his or her attention absolutely on the process. As in our belief verbal suggestions are preferable, it is better to close the eyes, save where written words are used instead of spoken.

Finally, the whole subject, even to-day, has not received sufficient study, and as Landon Carter Gray said “The truly scientific attitude toward it should be neither one of skepticism or credulity, but simply of expectancy.”

THE MEDICAL SIDE OF THE ALCOHOLIC PROBLEM.

BY T. D. CROTHERS, M.D.,

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There are three theories concerning alcohol to-day which are defended with great spirit and earnestness. The first affirms that alcohol is a true stimulant and tonic, a waste conservator and a concentrated food; that in medicine it brings certain properties which enhance and develop the highest functions of nerve and cell life.

The second theory denies these statements and asserts that alcohol in any form is destructive, that it has little or no value in any condition or state of life. As a beverage it is amongst the most dangerous and uncertain substances known. Also, that its effects on all animal life are injurious in the highest degree.

The third theory assumes that alcohol has some chemical properties and powers to perpetuate and sustain life, when used at the right time and in the right quantities and quality; that as a medicine it is indispensable in fevers and various organic affections; as a beverage it is the abuse that is to be condemned; its moderate use, first ascertaining the form of spirits best adapted to the man, is healthful and conduces to longevity.

Statistics, experience, laboratory researches, and statements of eminent men, in all the departments of human activity are grouped to prove and sustain each one of these theories.

CLINICALLY.

Within a very recent time the destructive influence of alcohol on the body has been recognized. All the newer text-books and systems of practice point out the dangers

from alcohol, its influence as a contributory cause in many diseases of the various organs of the body as well as of the brain and nervous system. The modern clinician inquires if there is a history of alcoholism or the moderate use of spirits in all cases, and this fact is important in the knowledge and treatment of the case. Next to the complication of syphilis, alcohol has a most important influence in the causation. In many obscure neuroses a history of the use of alcohol is even more significant than syphilis as a factor of degeneration and disease.

The various palsies and mental derangements, also the disturbances of nutrition and circulation, and obscure organic affections, are clearer and better understood when you can eliminate all alcohol causation. When pneumonia appears, the prognosis is very different if you can eliminate alcohol taking. In all surgical treatment the former use of alcohol complicates the results, and in fevers it plays a very important role. While alcohol is still used as a medicine in many instances its influence in the causes of disease as active, predisposing and contributory is becoming more and more prominent. Recent laboratory and clinical researches show that alcohol, used continuously, is a cell and tissue poison of a peculiar, corroding nature. It is not only a toxin but produces toxins which are both chemical and psychical poisons. These facts are confirmed in many ways and open up a new field of chemie, physiologic, pathologic, and psychologic research, which invites every medical man to enter and examine for himself.

PATHOLOGICALLY.

We are all familiar with the changes of thought and conduct of persons who are using spirits. From the flushed face and flashing eye following the first glass of spirits on to the delirium and stupor of intoxication there is a continuous signalling of distress. The brain and

nervous system are disturbed, changed, and finally become exhausted. Pathology is a study of the changes and injuries from alcohol manifest in these symptoms and signals. For a long time it has been known that the brain and nervous system of persons who use spirits were changed, shrunk and disorganized. Other organs, such as the liver, kidneys, and heart, were either diminished or enlarged in size, and so seriously damaged in structure as to very imperfectly perform their work. In many cases these injuries are so marked that there can be no doubt of the drinking history of the person, although no other facts are known. The physiologic chemists have attempted to determine the influence of alcohol on the body by elaborate experiments. Different observers equally competent have reached widely different theories. Each one has expressed great confidence in the accuracy of his report. When these claims have been examined and the errors eliminated, many new facts have appeared but no authoritative discoveries have been found, and the confusion and doubt remain. The difficulties are very formidable and the methods of research are difficult and open to many errors which cannot be eliminated.

The recent advances of psychology which enable us to measure the sensory and mental activities of the body have turned attention to the possibility of studying the effects of alcohol on these lines with better results.

It is assumed that if alcohol is a stimulant tonic or paralyzant or food in any way, even in small doses, its effects can be seen by external measurements.

In reality the heart, the temperature, the muscular activity, the sense of mental vigor, and general power of the body will accurately reflect the chemie and physiologic influences of alcohol on the body. Researches along this line have been made by many observers in this country and Germany during the past five years. A general summary will be of interest. The results have been

singularly uniform and have opened a new field with new facts which give clearer meaning and explanation to the problem. A normal, temperate person is examined every day at a certain time to find what is the average normal condition of his senses. His sight, hearing, touch, taste, smell, also his muscular power, are measured. Then the person is given one ounce of ethylic spirits, and an hour after is examined again. This is repeated every day, only giving less as the susceptibility of spirits increases. The result is that in each instance his range of vision diminishes. If he could distinguish a letter an inch long twenty feet away, after the use of spirits it must be brought up to twelve or fifteen feet to be seen. His ability to distinguish colors is obscured or lost altogether. Red lines fade away or can only be noted close by. Forms and shapes of objects run into each other at a certain distance.

The changed expression of the eye, often a prolonged staring, is significant of defective vision. The watery changing eye is also prominent. Persons engaged in work requiring precision of vision find a single glass of spirits seriously interferes with their work. A noted astronomer told me he gave up all use of wine simply because it blurred his senses, and work done after using wine or spirits contained more errors.

Painters and photographers find from experiment that all forms of spirits, even in moderation, disturb their color sense. Several very curious cases of color and sight defects have been noted which were followed by results more or less serious.

The hearing is likewise diminished. Where a watch could be heard thirty inches from the ear clearly, after spirits are taken this distance is shortened eight or ten inches. Sounds of a certain pitch can not be distinguished, and below a certain key are confused.

This defect of hearing is illustrated in loud, changed voice of persons under the influence of spirits. They are

deaf to their own voice, hence speak in a higher key. Some tones are recognized with morbid acuteness, and several questions have come into court concerning the capacity of drinking men to distinguish sounds correctly. Hallucination of hearing, like that of sight, extends over a wide area, and includes various conditions, but by the usual tests are distinctly measurable.

The sense of touch is equally obscured. The power to distinguish heat and cold, rough and smooth surface; the point of a pin as one or two substances is all changed. In heat and cold both exaggerated and diminished sensibility are noted. The sensations of surface are often diminished at least one-third from normal. The sensations of heat are increased for a short time, then reduced, and react to cold sensations. This is seen in a more pronounced degree in the experience of men exposed in a cold climate, where spirits taken give a sense of increased warmth at first, followed by extreme coldness. The physiologic explanation is the increased flow of blood to the surface and more rapid refrigeration.

The diminished muscular sense is significant. The actual measurement of muscular power before and after the use of spirits brings out the same facts of diminution of force, although the consciousness of this is wanting.

In taste the tests are made with bitters and acids. It is found that normally so many minims or drops to the ounce can be detected, but after spirits are used the quantity must be increased one-third to a half before it is recognized. This defect is noticed in the practice of tea experts and buyers who cannot determine the quality after the use of any form of spirits.

The same is noticed in the abnormalities of spirit drinkers in matters of taste. At no time in these examinations did the senses become more acute, but always diminished from the first use of spirits. The same test

in the smell was made with odorous substances. The power to distinguish odor in health did not diminish so quickly as that of taste, but it remained longer. There were wide variations, and many veritable hallucinations. At first this diminution could not be measured and compared, as that of the other senses, but in the second and third experiments it became more and more prominent.

In all cases there was a marked change and slowness of recognition of odorous particles.

Thus in all the five senses a marked paralysis or slowing up and diminished acuteness followed the use of small doses of alcohol.

Farther experiments of the power of the muscles were made. Thus the normal capacity of lifting and pulling or pushing was found to be so many units of measurements. Twenty minutes after the use of spirits it was slightly increased, but sixty minutes later it was measurably diminished.

Thus the capacity to raise a weight twenty inches in health was lowered to fifteen inches after the use of spirits. The power to pull five hundred pounds was diminished to four hundred and fifty pounds forty minutes after spirits were taken.

This muscular paralysis is seen in the heavy steps, rude jostling, shutting doors with violence, shaking hands with unusual force, apparently acting in reckless disregard of others. The power of muscular discrimination is blunted and the drinker is unable to judge the force exercised.

In all this the delusion of ability to exert more force than ever is always present. This is illustrated often in the power of muscular endurance. Experience shows that no work can be performed better on the strength of spirits. Muscular power and endurance is always seriously diminished by alcohol.

The action of spirits on the heart in these experiments yielded equally startling results. The number of beats

was increased, usually running up eight or ten a minute, but always dropping down below the normal level. If at eighty in health, the alcohol taken would send it up to ninety in the first hour, but the next hour it would drop to seventy, usually going below the health-level as far as it went above.

This was in accord with other observations that the increased heart's action from spirits reacted, falling below the normal level after a time.

The temperature of the body showed slight fluctuations, always dropping down a fourth or a half a degree, sometimes even more than this, but never rising.

In cases of poisoning from spirits the low temperature of the body is often a marked symptom.

One of the simplest tests is on the memory. From cards and short sentences it is found that memory will fail in twenty or thirty per cent. of all experiments.

After the use of spirits this percentage of failures increases to forty and fifty, and even a higher rate. The ordinary inebriate on admission to my hospital usually shows sixty, seventy or eighty per cent. failures. After two or three months this percentage will fall to half or less. This of course, only indicates the improvement of this faculty; but the large percentage of failures of memory observed in any one who uses spirits can be tested in many ways, showing the same palsy noted in the experiments on the senses.

The rapidity of thought and time reactions is another test, showing the mental activities. By the aid of a battery and a clock-work marking parts of a second, the time can be measured from the moment the eye perceives an object to its registration on a dial by the pressure of a button. This in hundredths or tenths of a second shows the time of the passage of thought. This in almost endless varieties can be used to show the quickness of sense and thought impression and to state them in figures. Thus the time in health for the registration of

sense impressions is three-tenths of a second. After the use of one ounce of spirits eight-tenths of a second or more is required.

If the time to express a thought upon a canvas and registered by pressing a button be seven-tenths of a second after using spirits it will be increased to double the time. Contrary to the common impressions the rapidity of thought and the time to express it is slowed up always after the use of alcohol. This can be measured with accuracy and precision.

These are only the outlines of a new field that is scarcely yet entered upon. So far these experiments show, without exception, that the action of alcohol is that of a depressant anesthetic or paralyzant.

The first few minutes in most cases after the spirits are used is a period of irritation and increased activity of the heart, with a more rapid flow of blood to the brain. This is followed by what appears to be in some cases greater sensorial acuteness and increased activity. This is only of short duration, often doubtful and always uncertain, followed by depression which begins when the spirits reach the general circulation. A minute and a half after the ingestion of spirits its effects have been traceable chemically, and physically in two or three minutes, by instruments of precision.

The palsy and slowing-up of all the mental operations is constant in all experiments, only varying in time and degree; in some cases very prominent, and in others less so. This is confirmed by observations of inebriates who after using spirits pass through the state of excitement to one of depression and stupor. This is also illustrated on the operating table where the ethers of alcohol, such as sulphuric ether and chloroform are given, with their short periods of excitement followed by profound depression. It is the same physiologic and pathologic action, only varying in degree.

The normal man who after taking one ounce of spirits

shows diminished sensorial activities and lower brain power, with appreciably lessened force, is at the beginning of the line at the other end of which is stupor and profound intoxication. The effect of spirits in all cases is that of depression and narcotism. The supposed stimulation is irritation, not increased strength and vigor. The relief from pain, discomfort, and fatigue which follows its use is narcotism. The sensory centers are lowered in activity and partly paralyzed, and do not register the danger, pain and fatigue symptoms.

There is another range of facts in this field of psychopathology which has only recently been noted. The new physiology points out that brain activity comes from the workings of clusters and groups of nerve cells, the dependence and connection of which must be exact, and, while complex, are changeable.

The highest normal state of health is a continuous association and disassociation of cell energy, with retraction and expansion of the dendrites. This movement is uniform and may be stated as the accumulation and liberation of nerve energy. The disturbance of this stability of nerve force is ill health, and the beginning of organic change, exhaustion and functional disturbance. Alcohol by its unaccountable affinity of nerve cell and tissue, checks, disturbs, and breaks up this normal stability of the highest nerve function, namely, the uniform flow of the dynamic forces of the brain.

A study of many persons who use spirits shows palsy of the highest development of the brain, namely, the character and morals of the person. That faculty which is called consciousness, which determines the quality of acts and duty to others, is the first to show injury. The inebriate is always defective in this. The poison of alcohol seems to concentrate most permanently on the so-called moral faculties. These being the last formed in the growth of the body are the first to suffer from this poison. The palsy of sensory centers, with enfeeblement

of co-ordination and ability to reason, gives some explanation for this change.

From this study of cases appear also brain fatigue and brain insensibility. The diminished sensory activities, with perversion of energy which can be measured by instruments of precision, and the microscopical defects of cell fibres, give conclusive evidence.

Science has made it possible to go back from these chronic stages and trace the formative causes and influences up to the beginning, showing a progressive march of dissolution following a uniform line of cause and effect.

There is no chance or accident or so-called vice, in the delirious or palsied inebriate. It is literally the degeneration of cell groups and cell systems, and all their complex order of dendrites. It is the organic changes of function and structure that are manifest in the defective and changed conduct and thought of one who uses spirits.

In the chronic inebriate these facts will pass unquestioned, but in the moderate and occasional user of spirits they are unrecognized and doubted by all except a few scientific men.

On dogs after the use of alcohol in small quantities the cell fibres and dendrites show changes. The cell walls and contents are altered, and the dendrites retracted. In men who have used spirits to excess these defects appear only more prominently, together with a confusing mass of changes of tissues and fibrinous deposits in other organs. In man experiments show changes, particularly a uniform depression, palsy, and lowered activity of the sense, and functional disturbances; also grave alterations of the higher brain.

The conclusion is sustained by these and other facts, that alcohol is a paralyzant poison to all cell activity.

Beyond this a new field opens of pathologic chemistry. The inebriate is suffering from fatigue and starvation.

The derangement and explosive liberation of nerve energy is followed by fatigue and the chemic changes of nutrition, the deficient oxidation of the blood, with defective assimilation and absorption of food, diminish both the supply and the proper digestion of nutrients.

The effete or waste matter accumulates and becomes the soil for the growth of many forms of germ disease. Acute inflammation of the lungs, kidneys and stomach, fibrinous plugs in arteries and veins, and many degenerations which end fatally are literally poison products, the result of chemic injury from alcohol.

Auto-intoxications describe many of these diseases, or rather special forms of dissolution, which have been termed by French authors as battles with germs and vital effects.

One conclusion is that spirits used as beverages are the most uncertain of compounds, and were it not for the common adulteration by water and harmless coloring matters, the injuries from such drinks would be immensely increased.

A second conclusion seems to be supported by all the facts of the latest investigations, namely, that alcohol as a beverage is an exceedingly dangerous one, and that the terms stimulant and tonic given to its various combinations are not sustained by critical inquiry.

On the contrary, the negative evidence is overwhelmingly against these terms. Its use in medicine as a solvent is seriously questioned by many pharmacists, who claim better results from other agents. The facts up to the present show that alcohol is of the class of narcotics and anesthetics, of which sulphuric ether and chloroform are the refined products. The physiologic action of both is the same, only varying in degree.

The suspension of sensation and the diminution of all the higher activities follow the use of alcohol in all cases, only it is probably very transient and not observed. From the temporary excitement and anesthesia of alcohol

ethers, back to the effects of small doses of ethylic alcohol the symptoms are identical. No one can predict what more exact observations will reveal; but the evidence is unmistakable that alcohols are anesthetics and narcotics. The ethers of alcohol have already revolutionized medical science and practically marked a great advance in the paraldehyde and other anesthetic compounds. In the coming century others equally valuable will be found. At the present the defence of crude unknown alcohols as beverages, in the drinks of the present time, is a strange delusion. Its use as a stimulant and tonic in medicine is without support in the facts of modern research.

EYEBALLS—BITS OF IRON AND STEEL—GIANT MAGNETS.

F. M. WILSON, M.D.,

BRIDGEPORT.

The extraction of foreign bodies from the interior of the eyeball is a problem of ophthalmology, which we have always with us. Bits of iron, steel, copper, brass, tin, lead, wood, glass, stone, etc., are constantly being projected into eyeballs with, of course, every range of injury, from the tiny particle, which hardly leaves its track, and which can sometimes be safely left to become encysted, up to the injury which demands immediate enucleation.

Before the use of magnetism, there was no very radical difference in the methods of extracting these different kinds of foreign bodies. Since the introduction of magnetism, there is a radical difference in the treatment of magnetic and non-magnetic particles.

Foreign bodies, whether magnetic or non-magnetic sticking in the cornea, foreign bodies lying in the anterior chamber, foreign bodies entangled in the iris, foreign bodies imbedded in the lens, in fact, foreign bodies anywhere in the anterior part of the eye, in front of the ciliary ring, can with more or less success, be extracted without the use of magnetism. Though even here, if the particle is iron or steel, the magnet is usually the better way, and I shall, later, refer to a case which illustrates this. But foreign bodies back of the ciliary ring, back of the lens, in the vitreous, are quite another matter, and even now, non-magnetic particles are extracted from the vitreous, with the preservation of vision, only in a small minority of cases.

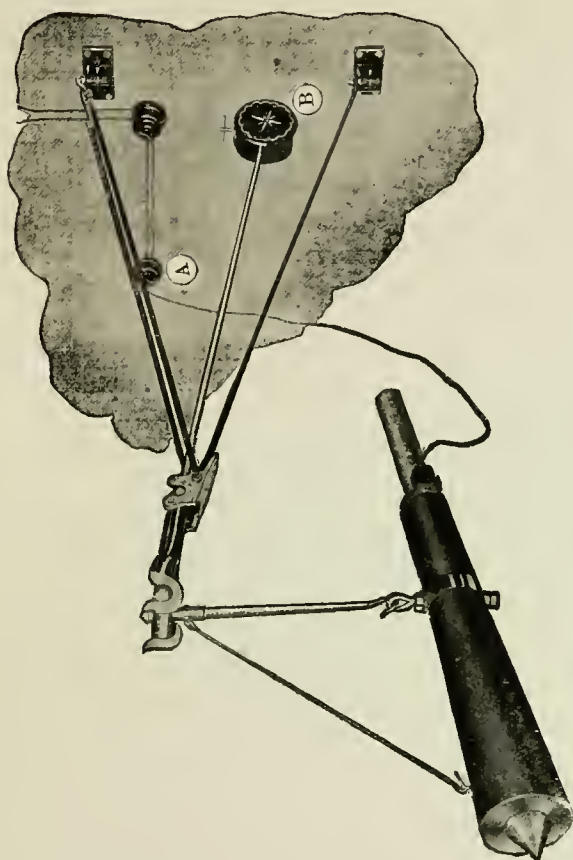
Bits of iron and steel, however, are being pulled from

the vitreous, by the large magnet in constantly increasing numbers, and with the preservation of vision.

The use of magnetism in ophthalmology is a little more than twenty-five years old, but its extensive use is very recent. At first small permanent magnets were used, but these were very soon displaced by the electro-magnet. Up to about ten years ago, these electro-magnets were all comparatively small. The electricity was supplied by a small battery, and each magnet had a set of small tips. These tips had to be introduced into the eye and brought nearly or quite in contact with the foreign body to render the magnet effective. During the last ten years magnets have been getting larger and larger, until they have come to be large pieces of machinery, requiring the street current to run them, requiring some form of mechanical apparatus to handle them, and having little or nothing in their appearance to suggest the fact, that they are eye instruments. Most of these larger magnets are strong enough to act outside the eyeball, and herein lies their peculiar excellence.

The extraction of foreign bodies from the vitreous, by the old method of hook and forceps involved the added traumatism of the instruments themselves, which was often greater than that inflicted by the foreign body, and even with the permanent magnet and the small electro magnet, there is still the added traumatism of the insertion of the small tip. But when the giant magnet is used the only added traumatism is the return passage of the foreign body itself, by the same route which it entered, or by some other route, if that seems preferable.

A large number of men have devised magnets and written about them, but two men have been quite prominent in the matter. The small electro magnet owes its introduction more, perhaps, to the influence of Hirshberg of Berlin, than to any other one man; while the giant magnet owes its introduction almost exclusively to Professor Haab of Zurich.



A. CONTROL BUTTON.
B. COUNTER WEIGHT.

This large or giant magnet is the Volkmann magnet imported by E. B. Meyrowitz. It is supported by a swinging bracket. I have attached this bracket to the wall much higher than was originally intended, and I raise and lower the magnet with a rope. The magnet is more out of the way when not in use and is more convenient to handle when in use. I have also had the control button attached to the magnet instead of the wall, so that it is always within reach.

Under proper conditions, on a mass of metal of considerable size, it develops immense power, and this immense power is necessary to get the small power, which we wish to use on the eye, focalized at the point of the conical tip. None of these large magnets have power enough to pull small foreign bodies through the sclera, or through the cornea.

If the foreign body is to come out of the wound of entrance, that usually has to be enlarged, or if some other line of exit is preferable, an incision must be made large enough to allow the foreign body to pass easily through it.

They will, however, draw the foreign body through the vitreous, through the zonula of zinn, or through the lens. The iris usually stretches before the foreign body, and is more apt to be torn from its periphery, than to let the foreign body through it. From the purely practical side of the question I wish briefly to refer to some of the problems involved in five recent cases.

The first is a case of Dr. Topping's. A middle aged man, working at Farist Steel Works, was driving out a steel wedge, striking with a hammer from below upward, when something flew, hitting him in the right eye. His own estimate of the size of the foreign body was that it could not have exceeded a quarter of an inch in any diameter.

The lids and conjunctiva were much swollen, and there was a laceration of the conjunctiva simulating a wound of entrance. The orbital tissue was also swollen enough to push the eye very perceptibly forward. Examination with the ophthalmoscope, after dilating the pupil, made it certain that no foreign body was inside the eyeball. This excessive swelling could have been produced in two ways. First, by the impact of a large foreign body without penetration, or second, by the penetration of a smaller one. The large magnet was brought to the eye repeatedly, from various directions, entirely without re-

action. The eye subsequently recovered with normal vision. Here the magnet played the somewhat subordinate part of furnishing a bit of negative evidence. It turned out to be the whole steel wedge, three inches in length, which hit him.

In the second case, the patient estimated the foreign body to be large and it turned out to be small, just the reverse of the first case—a young man working at a drop press, stamping the openings in a piece of sheet steel, which was to form the barrel of a small kerosene stove. At a certain drop, the press did not work properly; something flew, striking him on the bridge of the nose and in the right eye. Both he and the companion, who came with him, were positive that this was a piece of the sheet steel two and one-half inches long, and three-eighths of an inch wide. There was a slight wound on the bridge of his nose, and a wound of conjunctiva above the upper edge of right cornea. Vision was normal. In the upper part of the background of the eye, the ophthalmoscope showed a slight hemorrhage. The large magnet was brought to the eye for diagnosis, but without reaction. A dressing was put on and the patient told to return the next day. I did not see him for a month, when he came with the right eye red and painful. After dilating the pupil with difficulty, the ophthalmoscope showed in the upper part of background a large white plaque of exudation. The large magnet was again brought to the eye for diagnosis, and again with negative result. This was about three weeks ago, and the man has been under continuous observation since. After a few days the posterior end of the plaque of exudation became loose and hung down in the vitreous. After a few days more, the whole plaque was down in the vitreous, hanging only by a shred, and from where it came could be dimly seen something dark, which looked like the centre of a sliver of metal, with both ends imbedded in the coats of the eye. On one particular day

I thought I dimly made out the anterior end of the sliver. Five days ago I made an opening into vitreous between superior and external rectus. The large magnet was repeatedly and persistently brought to the opening, without result, and the ophthalmoscope showed no change in the position of the foreign body. Using a small magnet tip as a probe I succeeded in dislodging the particle, so that it was free in the vitreous, and again the large magnet was tried, without result. Being now convinced that the particle was non-magnetic, I made one attempt to extract it with forceps, but did not succeed, and the eye having already had an excessive amount of manipulation, I stitched the conjunctiva over the scleral wound, leaving the foreign body in the vitreous. There has been no infection of the wound, and the immediate reaction from this manipulation has been slight.

The third patient gave a description of the size and material of the foreign body, which turned out to be absolutely accurate. He was at work under a metal roof. A man on the roof was punching holes for the rivets. A small disc of the sheet roofing, about one-eighth inch in diameter, was driven by the punch downward through his right upper lid, through the sclera and into the vitreous, leaving the anterior part of the eye untouched. On account of the hemorrhage, nothing could be seen back of the lens. As the vitreous chamber had already been opened by this large foreign body, the wound of entrance was chosen as place of exit. To prevent traction toward the anterior part of eye, the man was placed on his back, and while he rotated the eye strongly toward his feet, the magnet was cautiously brought from the top of his head, first for diagnosis, to make sure that the metal had not gone entirely through the eye. While the magnet was an inch away, there was distinct bulging at the wound of entrance, and pain. The wound was slightly enlarged with a small Graefe knife, and on second application of magnet the metal

flew to the tip when about one-quarter inch away. The patient left the hospital four days ago with a quiet eyeball, but no vision.

The fourth patient was using a cold chisel when a piece of steel, about one-eighth inch in its longest diameter, and having approximately the shape of a quarter of an apple, struck him in left eye, going through the cornea, below and a little to the inner side of the pupil; across the anterior chamber, lacerating the iris; through the lens, and stopped with about half or more of it in the anterior layer of the vitreous. Through the kindness of Dr. J. B. Emerson this patient was brought to the large magnet at the Manhattan Eye and Ear Hospital in New York City. Dr. Emerson made a separate incision with a Graefe knife at lower edge of cornea. The eye was then brought to the magnet and the foreign body was at once drawn into the anterior part of globe, but became entangled in the iris. The wound of entrance and the new incision were connected, and on second trial the steel flew to the magnet just before the tip touched the eye. Final result, absorption of lens, secondary operation and, with a correcting lens, 20-40 vision.

The fifth was a case of Dr. Miles'. Small bit of steel through cornea between center and inner margin, across anterior chamber, through iris and lay between iris and lens. Incision above, insertion of magnet point of medium sized electro-magnet. No result. Large magnet pulled it through pupil and out through the incision above. Final result, normal vision, periphery of iris engaged slightly in wound.

We have then one case in which the magnet helped in deciding that no foreign body was in the orbit. One total failure possibly through faulty manipulation. One case of preservation of a blind eyeball in place of immediate enucleation. One case in which useful vision was preserved, which could not have been preserved in

any other way. One case in which normal vision was preserved, and while in this case the foreign body might possibly have been removed with forceps, an iridectomy would have been necessary, and the magnet was undoubtedly safer and better.

COMMERCIALISM IN MEDICINE.

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By the title of this paper I would describe a condition that should exist in the practice of medicine at the present day as largely as it does in every other profession or calling, but which practically enters into it but to so limited an extent, that those engaged are deprived of an appreciable part of their earnings with vexatious regularity. I mean strict business methods, and the conduct of practice on approved commercial principles. It is a well-known and deeply-felt condition among general practitioners that a portion of their charges never comes to collection, and the worst quarter of an hour which a physician of forty, thirty, or even ten years' practice can prepare for himself is the study of his old account-books in which he can map the people that might, should, and could have paid, and never did pay; and the accounts, which by his own trustfulness or tardy efforts he has lost absolutely; and then afterwards considers. First, the physical work and mental anxiety, the nights and rides he has devoted to these cases; and, secondly, the fine houses or income bearing bonds he might have acquired if he had been justly dealt with. Such a scanning of old accounts is enough to give most doctors an attack of moral colic. Dr. Ellsworth used to tell of an old physician of the early times of practice here, who was found to have charged but ten cents a prescription. The City Medical Society rallied on him, and a committee of inquiry came to his office. The old man gave but a single excuse. He said: "I charge now more than I can collect," and they were satisfied. That is undoubtedly true of every practice; we charge

more than we can collect, and far more than we do collect. And to investigate somewhat the reasons is the aim of this inquiry.

Permit me to stop a moment in order to congratulate the specialists, those fortunate people who are largely exempt from loss. They have limited hours, they have definite and single lines of study, and their goods are paid for on delivery. When the office hours are over the specialist has in his pocket the results of his brain work, and if he is called in consultation people pay him at once, while it does not yet enter into their remotest consciousness to pay the man who is at their beck day and night. The latter, like the poor, is always with them.

To return to the subject. While the general practitioner does not feel so acutely the reduction of bills, which is frequently insisted on, and most so in cases that have been most harrowing, the absolute loss cuts deeply into his calculations. Reduction is not so much the fashion now as formerly.

In my early practice the leading surgeon of this city hardly ever sent out bills, and the largest practitioner habitually reduced them one-third or one-half. That set a pace which proved almost ruinous to beginners. It is the entire loss of bills we deplore, bills that were incurred by people who could and would pay their doctor as well as their grocer or landlord if they knew that the debt should be pressed by similar business methods, or if the efforts of their creditor were strongly exerted before their gratitude and honest intentions had been dimmed and withered by the effects of time. How came it so?

To begin with, in times long past, but which are still perpetuated in a manner in Europe, especially in small, close communities, the doctor received for his services a "honorarium," not a fee. The debt for medical services was then a debt of honor, that is, a debt depending

for its payment on sentiment. "We" endeavor to make it a debt of honesty, that is, a debt depending for its satisfaction on duty. Then the honorarium was according to the means of the patient, not the value of the services. Old Parè tells what bags of gold he received from counts and dukes for attending their wounds, while the soldier paid nothing. It was in the shape of a present; no bill was asked, no price set, the wealthy gave according to means and degree of gratitude. The poor never thought of giving, but the middle class honored the doctor's services by gifts in kind, a pig, or especially nice farm products, or articles of clothing, or personal services, or any old thing that came handy.

The services of a doctor were held high, he occupied a leading position in the community, but no commercial rules applied to his remuneration. The well-situated gave generously, and this was supposed, by the people, to cover his services to the poor. There was a certain distinction and ideality in this, but no true return for labor. But, as above indicated, in retired portions of Europe, the back countries, such conditions exist to this day, and even with our own, wide-awake, twentieth century nation, the impression of this former patriarchal state lingers in mind with sufficient force to lead folks to consider their financial obligation to the doctor far lighter than any other they have incurred. "The doctor's bill always gets paid last" is a phrase I have often heard; and also this: "He makes enough on the rich, and don't need our money." Both are residual ideas of a former condition where payment depended on gifts. Allow me to tell an anecdote of Nelaton, the famous surgeon of the second empire, whose clinics I was fortunate enough to attend. He was a very lovely man, but also a business man. After an operation that had saved the life of the only child of a great house the mother called on him and presented a keepsake, a pouch beautifully embroidered by herself. Nelaton listened

to her professions of gratitude and then said: "Pardon me, I do not practice for keepsakes! My charge is 10,000 francs." "Very well," replied the lady, stiffening, then took from the pouch 20,000 francs and presented him with ten. "Thank you," said the great surgeon as he wrote a receipt. "That is right. This is my property. The other would have been a gift and a favor." I present to you then these impressions of former days, which still leave their mark on the public mind, as the first obstacle to a square deal with the doctor.

Another condition might well be considered, which dulls financial appreciation of his services, in the consideration of the unintelligent. What he gives is nothing palpable. It is simply advice. It takes nothing from him. Except for his time it leaves him as rich as before. It is not like a ham or a pound of coffee, something that weighs and measures, hence it becomes manifest honesty to pay for the ham and coffee first, since they must be paid for in turn; and for the doctor's advice, which seemingly cost him nothing at any old time when you are ready. So do they reason. Dr. Lewis Sayre was once called to Brooklyn to consult in the case of a boy with a bad leg. He came, examined, gave his tremendously distinct orders, and charged two hundred and fifty dollars. "Why," said the father reproachfully, "you have only been twenty minutes about it." "True," replied Sayre, "but I don't charge for the time spent, I charge for knowing how." And this "knowing how" contains the matter in a kernel. It means the college, the clinic, the time and capital spent, the technic and judgment, the fruit of much thought and of rasping experience, and it also means the shouldering of a tremendous responsibility and liability for life and health. Nothing of all this can be put on the scales, but they weigh at least as heavy as the ham and the coffee and should, in honesty, be as well paid for and as promptly. In counting up the handicaps to a commercial policy in

practice one cannot overlook the ideal aims of the profession. It would be a wrong to charge even the most mercenary practitioner with a remembrance of dollars and cents, when once he has reached the bedside and is in the presence of his case. He may have the fee in mind when he gets the call or reaches the neighborhood, or enters the house. But, when in the presence of the case, the case asserts its superiority. Medical practice is peculiar. Either it is so requiring that it drives all else from the mind, or it is so strong in human appeal that nothing else can prevail against it. At any rate, when once there, the doctor attends unquestioningly to cases that promise no return. And so, during attendance at any case, the matter of fee is well in the background, the life and recovery of the patient always to the fore. One cannot help that. Medical science is a compelling mistress and shuts out business considerations. None would wish it otherwise during the time of attendance, but unluckily this influence extends beyond. The doctor's attention has been so riveted to the safety and well-being of his patient, his sympathies are engaged so powerfully, that he is unable to assume a strict or severe attitude toward him subsequently.

Against reason and probability he trusts, and in this way yields to slack business methods. He is not prompt or decided in presenting and pressing his claim. He waits. He has confidence. He and his patient have walked along the edge of the shadow of the valley together, how then can he inconvenience him? He has done so much for this patient, how can the latter forget it? And so he charges on his books and sends his semi-annual bills. And he waits. And he waits. And when the two meet the patient is jocular and grateful, and the doctor expectant and inquiring after his health. And time passes.

It would be altogether wrong to assume that this patient means to cheat his doctor in the first place. He

does not. He is honest. Most people are honest when it doesn't inconvenience them. And, at first, and perhaps for a long time after, the patient means to pay. A charge to the contrary would deeply offend him. He couldn't believe it of himself. But—the doctor has not been urgent. He doesn't need it. His profession forces him to dress and live on respectable levels, to keep a horse or an automobile, to mix with the well-to-do. Hence the patient's conclusion: "He is rich, he can wait, he doesn't require it half as much as I do." After a sickness many things have to be paid for. The doctor must wait. And by the time everything else is paid, new necessities have arisen. And, worst of all, the debt has grown old, gratitude has wilted, payment is inconvenient and lastly the matter is ignored. It is put on the shelf of: "Some time." But that time never arrives. Or fault is found—perhaps with the treatment; perhaps with the attempt to collect. When men are unwilling anything will answer for an excuse to their conscience. These men deem themselves honest. They were honest in their intention at the time of treatment. They remained honest for some time after. They paid the nurse. They paid the druggist. They paid for provisions. But all these were urged with business promptness and pushed with a "must" in their color. Not so the doctor's claim. Kindness, consideration, long-suffering characterized it from the first, and the doctor never has awakened to the truth of the situation. He knows sick human nature very well, but he does not take full account of well human nature.

This is the class where most bills are lost, or are carried till the law wipes them out. A class that ordinarily is honest enough, that surely means to pay at the period of sickness and for some time after, but that finds it inconvenient to do so till time has weakened the obligation and the doctor's lassitude and his want of power to compel leads them to put it off indefinitely.

For the loss of these debts our methods are largely responsible. Another class that might pay moderate prices are ordinary working men, and many do so honestly and gladly. The vast class of Russian emigrants have studied their ethics well. Never more than a dollar, but a dollar in hand at each call. If that were the practice throughout we could almost afford to abide by the price. But a number of the above class, not Russian, never means to pay and never does. It is with those that the legends of: "The doctor is a rich man anyhow, and he gets enough from the wealthy to pay for the poor" obtain, and they comfort their conscience in such manner.

There is no way to collect from these but at each visit. And often after you are securely tied to your case by medical and humane obligations they do not pay any longer. They pay, however, everyone else. I regret to say that these good people who do not pay the doctor, and really never mean to, are mistaken in the assumption of his wealth. The average medical man is not rich. Fair practice, diligently pursued, gives fair competence, but rarely more, and he who looks for wealth in the rank and file of practitioners is on the level with the countryman who searched under the oak tree. It was near a lunatic asylum where they employed, as usual, the quieter patients in jobs about the house, and a very tractable one was sent outside to paint the fence around the grounds. Up strolled a countryman and watched him, and then talked. "See that oak tree at the foot of the hill," asked the lunatic. "There are ten thousand dollars buried under it." In the afternoon the countryman returned, his clothes covered with mud and entirely played out. "Didn't you say there were ten thousand dollars under that tree?" he asked. "Yes. Did you look?" "Of course I did." "Well," answered loony, "I guess you better take the paint brush."

As a matter of course, every practice of some years' standing has a list of deadheads. That is, a number of

individuals or families whom one treats without charge. These, under one pretense or another, gather around every practice, like barnacles on a ship, and pay in thanks and laudation, but not in money. One treats them with great attention and does not even dream of economic claims.

The doctor's laxity in his business collections has been charged with much of the losses incurred. That laxity results from various causes, as we have found. It results, once, from the ideal aims of his profession, which overshadow so mightily all economic consideration. Then it results from the intimacy and attachment that spring up between patient and physician and that beget a false confidence in the former's character. Again the comradeship begotten of a common fight against great danger stands in the way of strict obligations. And, finally, the attitude of the profession blocks the way.

For ages it has been a favorite assumption that men study medicine for scientific purposes and with benevolent aims, solely. That is true to a limited extent in this era, with people very fortunately situated. Duke Theodore of Bavaria, the famous oculist, and the Queen of Portugal, excellent in fever cases, did not study medicine to make their living. A number of the sons of our wealthy enter the profession for the interest in it. But this is not true of the main mass. They study medicine as one studies law, divinity, art, music, or as one enters a commercial pursuit—to earn money, and make a decent living. In very truth, the first cause of a professional visit is the fee, and so it must be if the scientific work is to have a foundation. Let us as boldly acknowledge this standpoint as the lawyer, or publisher, or artist confess it, who do not plead easiness, or publish news, or create immortal forms of beauty for “the fun” of the thing. We do not study and practice for “the fun.” By accepting and professing this economic standpoint we stand on solid ground, upon which later ennobling works of science and humanity can be reared.

No one can escape the elevating influence of medicine, or its trend to higher purposes than the mere dollar. But, let us have the dollar to begin with, for we earn it and we need it.

Of all ages in the world the present is the most honest, the cleanest, the straightest in weighing and meeting obligations. It is an age of commercialism, where the highest act consists in giving value for value through all departments of life, and where even the impalpable debt of millionaires to the masses is acknowledged by a free outflow of their money in libraries, hospitals and all kinds of public institutions. This age of commercialism is understood and accepted by all professions except our own, and we suffer because we hold aloof from the commercial instincts and practices of the world around us. It is necessary not only to introduce modern business methods in the policy and economic management of our practice, but it is necessary that these be sanctioned and promulgated from the top, by the leaders of our profession, by the great masters and arch-masters of medicine, by those whose services have proved to the world their worth, their prudence and their charity.

And now where shall we look for the charity of the profession? How and where is it exerted? Years ago it was deemed charity to give to a tramp, and the man who responded to the beggar on the highway was called blessed. The less one asked about the need of a claimant, the more one abstained from investigating his case, the higher, the purer was the charity. A person had only to look wretched and to ask, and, if you were truly good, you gave. That sort of charity still exists in countries of more sentiment than intelligence. Our authorities think it a blunder if not a wrong to give charity in such an unintelligent way. Our charity is organized. Founded on the common sentiment of the community it is exercised with intelligence, judgment and discretion,

and in such a way that all poor have equal claim, opportunity and share. And so with medical charity, which was wont to go at random wherever it was called. It is now organized charity exerted at hospitals and by dispensaries, by town physicians, and by free clinics. There is hardly a hospital in the world to which the efforts of medical men have not given the initiative, which they have not caused to be founded and supported by a half-unwilling public; where not the best men of the city and district spend their best time and make their best efforts without the least idea of remuneration. There is hardly a dispensary in the world where not the best young men of the profession work out ideal aims and scientific purposes by the most laborious practice in the service of the poor, and without return. At the free clinics the most difficult cases are treated by specialists for never a dollar. And the most valuable time of the day is given to this by people who are not independent themselves, but whose living depends on their work, and who attain in such charity results that exceed the successes of private practice. Next to the very rich the poor have the most skillful medical service always at hand. And doctors give it freely. That is medical charity, organized, intelligent medical charity. And it is exerted lovingly, eagerly, freely—though every hospital and dispensary case lessens the scope and income of private practice.

But one can go even farther. The entire higher effort of the profession is a work of supremest charity. That work is sanitation. It is carried out by the physician in his families, by physicians in their towns or cities, by the heads of the profession in their state and nation, carried out against the struggle of the community, against the efforts of the rulers. Doctors have wrested from the governing powers and from the people, which until within a score of years have never valued these efforts or understood their importance, the sanitation which has cut down the death-rate; the sanita-

tion which has limited and locked in epidemics; the sanitation which has kept infections from developing and has kept people from exposing themselves to them; the sanitation that has decreased, that has minimized, that has confined disease, and the sanitation which, if it were followed up by people in their manner of living as it is in our surroundings, would soon free mankind of the majority of physical ills, and deprive doctors of their patients. When I say doctors have wrested these things from the public I know whereof I speak. For, I assisted at the birth of our State Board of Health, after the bill had been killed twice. And I helped somewhat at the city board—which even our civilized community then characterized as farcical and unnecessary. Those that worked for the Medical Practice Bill can tell as much. So much for sanitation. In addition, all over the world, in the laboratories of every university, every college, every hospital, every larger Board of Health, and in countless private laboratories the pursuit, the hunt is kept up for the causes of disease. To find these and the means to meet or destroy them consumes unnumbered hours of unnumbered medical men. The fruit of some researches has come, the fruit of others lies in the future. There is no pay, no reward for this except in such fame as comes to the benefactors of humanity, and it may proudly count with sanitation and the hospital as among the magnificent organized charities of the medical profession. And these should be held as the more unselfish, since their success takes from us, that others may be benefitted.

I think I have shown that medical men who give time and effort in such abundance without any but ideal returns still deserve the name of the most charitable class on earth. And that, beyond this, they have not only the right but the duty to make sure of their honest earnings in private practice, and to treat their accounts by the commercial methods of to-day.

SURGICAL PAPERS.

THE IMPORTANCE OF THE EARLY RECOGNITION AND TREATMENT OF DISEASED CONDITIONS OF THE GALL-BLADDER AND BILE DUCTS.

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The conviction has of late been forced upon me that a large amount of unnecessary suffering and loss of usefulness and production on the part of the individual, as well as an appreciable shortening of the average duration of human life, is due to the failure of the physician to early, or even at any time in their course, recognize and properly treat diseased conditions of the gall-bladder and bile-ducts, is my excuse for preparing this paper.

As I know of no word which can be used to include both diseased conditions of the gall-bladder and bile-ducts, I shall in the remarks which follow, for convenience, consider the term "Gall-bladder Disease" as applying in a general way to all diseased conditions having their inception in the gall-bladder and bile-ducts.

It will be our endeavor to show that the number predisposed to gall-bladder disease is large; that the unrecognized cases are many; that few have the proper treatment at a time when it can be most serviceable; that the condition of those suffering from chronic diseases of this class is most unhappy and often intolerable; that the complications produced by the presence of gall-stones may set up diseases in other organs and cause serious impairment of their functions which of themselves may prove fatal; that early surgical interference offers the best possible results; and that operations upon these organs are not so serious as is usually considered.

Diseased conditions of the gall-bladder are of much more frequent occurrence than is usually supposed.

Nearly ten per cent. of all adults are said to have gall-stones, but only about five per cent. of these, fortunately, suffer from any appreciable discomfort therefrom. While, then, only about one in twenty of all gall-stone subjects ever has any symptoms calling attention to these conditions, there are no marked indications by which one can select beforehand those who will become sufferers from gall-bladder disease. It is now a pretty well-established fact that calculi of the gall-bladder are of themselves of little importance, provided there is a free passage of bile in and out of this viscus. A considerable amount of infection may in this way be taken care of by constant flushing of the gall-bladder with healthy bile, but when the free flow of bile is interfered with, either by inflammation or obstructions of the ducts, or by the fundus of the bladder becoming dependent, giving rise to a considerable amount of residual bile, in which any infectious material may speedily become more effective, there are rapidly developed the symptoms of gall-bladder disease.

Case two of my series, was a lady of about sixty-five, in whom a prominent member of this Society had discovered a tumor in the right hypochondrium twenty years previously. This had given her no trouble until about six weeks before operation, when the infection evidently commenced. It is a common experience to find at autopsies gall-stones in subjects in whom there had been no symptoms whatever of their presence during life. Cases of gall-bladder disease often occur independently of the presence of gall-stones. These are probably due to an infection which has traveled up the ducts from the intestines and which has become implanted upon the gall-bladder wall. Ricketts, in a recent article, says that this is much more common than will be supposed, and that "continuous infection of the gall-bladder and its ducts, minus gall-stones, is the most serious."

In my last case, that of a young girl, fourteen years old, there was an acute infection of the gall-bladder

which was imbedded in a mass of recent exudate, but at no time in the history of the case did we find any evidence of the presence of a gall-stone. This case was supposed to be a case of appendicitis until the time of operation, all the symptoms being characteristic of that disease. There is always the possibility, however, that a gall-stone may have been present at some time in the history of these cases and passed out in the usual way, leaving the cholecystitis behind.

Of the variety of conditions which may occur in this locality and which may pertain in connection with the progress of the disease or course of the calculi, it is not within the scope of this paper to consider. Neither is it our intention to enter into any detailed consideration of the etiology or diagnosis of these conditions.

We will then consider it as an established fact that one adult in every ten or twelve has gall-stones, which means that in this assemblage there are certainly several individuals who are unconsciously harboring these unwelcome and unbidden guests, and that it is impossible to predict which out of every twenty of these so affected will become seriously invalidated thereby.

That these conditions are often unrecognized cannot be denied. How many of our own cases, who have suffered and perhaps died with chronic ill-defined disturbances of the digestive organs have actually had unrecognized inflammatory conditions of the biliary passages, neither you nor I will ever know. I believe it is true that more experience and more careful attention to diagnosis in such cases will show that a large number of them have some abnormal condition of these organs. It is probable that many who have died from supposed cancer of the liver, or even of the stomach, have actually suffered from gall-bladder disease. Surely the diagnosis between these conditions is not easy.

Case two, already referred to, was seen a few days before operation by a surgeon of eminence in a neighbor-

ing city, one in whom we could all have confidence and upon whose judgment we would be willing to rely. He was ready to stake his reputation upon the diagnosis of cancer of the liver, and said that no amount of money could tempt him to operate.

I remember a case seen a few years ago, which appeared to be malignant disease in which a tumor could easily be made out a little to the left of the median line. There was not, however, the amount of cachexia and exhaustion which you would expect, and an exploration was advised and allowed. At the Hartford Hospital later, Dr. H. G. Howe found a large cyst, which by pressure upon surrounding organs produced the existing symptoms. There was found in the fluid fragments of old broken-down gall-stones, and it was evident that the tumor was originally either a part of the gall-bladder or a cyst formed around the gall-stones, which had at some time passed out through the wall of the gall-bladder or ducts into the abdominal cavity. This case made a slow recovery, but is in good condition at the present time.

Dr. Harry Dorr Niles, in the March number of the *Annals of Surgery*, relating a case resembling cancer of the stomach, says: "There was evidently an obstruction at the pylorus, which I am sure five years ago we all in view of the other symptoms would have pronounced malignant."

But it is not always unrecognized cases which are not properly treated. I can recall several fatal cases which were recognized in ample time to have been relieved by an operation which was positively denied or postponed until the patient was in such a condition that no interference of this kind could be successful.

Last winter I saw a lady, in middle life, very fleshy, who about two weeks previously had commenced to have pain in the right side, with fever gradually increasing. Her symptoms had grown rapidly worse, and there was discovered a much distended gall-bladder which was evi-

dently the seat of an acute infection. Operation was refused and an unnecessary death recorded.

It is hardly necessary for me to place before you the picture of the most unhappy condition of those suffering from this disease in its chronic form, with all its pain, inconvenience and danger. The complications which may be caused by gall-stones are so numerous that I cannot in the time allotted to this paper consider them in detail. They are, however, so extensive and far reaching that I take the liberty of quoting the following list from Mayo-Robson's work on this subject:

(1). Ileus due to atony of the bowel, leading to enormous distention, and to symptoms and appearances of acute intestinal obstruction apparently the consequence of the violent pain.

(2). Acute intestinal obstruction dependent on

- (a) Paralysis of gut due to local peritonitis in the neighborhood of the gall-bladder.
- (b) Volvulus of small intestine.
- (c) Stricture of intestine by adventitious bands originally produced as a result of gall-stones.
- (d) Impaction of a large gall-stone in some part of the intestine after ulcerating its way from the bile-channels into the bowel.

(3). General hemorrhages, the result of long-continued jaundice, dependent either on gall-stones alone, or on cholelithiasis associated with malignant disease.

(4). Localized peritonitis producing adhesions, which may then become a source of pain even after the gall-stones have been gotten rid of. We believe that nearly every serious attack of biliary colic is accompanied by adhesive peritonitis, as experience shows that adhesions are found practically in all cases where there have been characteristic seizures.

(5). Dilatation of the stomach dependent on adhesions around the pylorus.

- (6). Ulceration of the bile-passage, establishing a fistula between them and the intestine.
- (7). Stricture of the cystic or common duct.
- (8). Abscess of the liver.
- (9). Localized peritoneal abscess.
- (10). Abscess in the abdominal wall.
- (11). Fistula at the umbilicus, or elsewhere on the surface of the abdomen, discharging mucus, muco-pus, or bile.
- (12). Empyema of the gall-bladder.
- (13). Infective and suppurative cholangitis.
- (14). Septicemia or pyemia.
- (15). Phlegmonous cholecystitis.
- (16). Gangrene of the gall-bladder.
- (17). Perforative peritonitis due to ulceration through, or to rupture of, the gall-bladder or the ducts.
- (18). Extravasation of bile into the general peritoneal cavity.
- (19). Pyelitis on the right side due to a gall-stone ulcerating its way into, or an abscess of the gall-bladder bursting into, the pelvis of the kidney.
- (20). Cancer of the gall-bladder or of the ducts.
- (21). Subphrenic abscess.
- (22). Empyema of the right pleura.
- (23). Pneumonia of the lower lobe of the right lung.
- (24). Chronic invalidism and inability to perform any of the ordinary business or social duties of life.
- (25). Suppurative pancreatitis.
- (26). Chronic interstitial pancreatitis.
- (27). Infective endocarditis.
- (28). Cirrhosis of liver.

When we consider the condition of those chronically ill with gall-bladder disease and the alarming complica-

tions which may be developed later on, it naturally follows that that treatment will be most successful which is applied early, before marked changes have taken place in these organs or those in their immediate vicinity. Internal medication will often be of great service in averting attacks of gall-stone colic, but I know of no remedy which will remove them when once formed in the gall-bladder.

I have personally operated upon only six cases, with two deaths, but have been intimately connected with six other operations, with one death. My first fatal case (No. two), already referred to, was the one in which the tumor, caused by a number of calculi in the gall-bladder, had been constantly present for twenty years, and which had a few days before operation been diagnosed as cancer of the liver. In this case the gall-bladder, on its anterior surface was thickened to an extent of at least one-half inch. Quite an amount of pus was present, with marked symptoms of systemic infection. I think all the physicians connected with the case were agreed that death, which occurred several weeks after operation, was due to the infection which remained deeply seated in the thickened bladder-wall. A simple cholecystotomy was performed, but I am certain that at the present time a total extirpation of the gall-bladder would be practiced, which I am sure would offer a much better prospect of recovery. How much better, however, to have had an early operation at a time before any extensive change had taken place.

My other fatal case (No. five) was that of a male, aged sixty years, who ten or twelve years previously had had a severe attack of fever with distention of the abdomen and some jaundice. He was considered to be very ill. Since that time he had had frequent attacks of gall-stone colic, but not sufficient to lay him up more than a day or so at a time. About six days before operation he had an attack similar to the first, and was quite ill from

the start. There was fever, jaundice and marked tenderness at the outer edge of the right rectus, with some fullness at that point. He was suffering intense pain, and was vomiting almost constantly, some bile appearing in the matter ejected. The pulse was irregular and weak and his condition very unfavorable for operation. As, however, he was growing rapidly worse, an exploration was advised, it appearing to me that the infected and distended gall-bladder was adherent to the abdominal wall, and that it could be easily drained. Consent was obtained and the operation commenced. My only assistant was the attending physician, who, of course, was obliged to give the anesthetic, although a physician four miles away was sent for and arrived before the operation was completed. The enlargement was found to be due to a mass of exudate surrounding an almost empty gall-bladder. A stone about half an inch in diameter was found, moving up and down, in the dilated hepatic and common ducts. If you have never tried it you cannot realize the difficulty of getting hold of a stone in this position. It would slip out from between the fingers and disappear absolutely, to be found later at the upper end of the hepatic duct, almost in the substance of the liver, and the next minute down in the common duct entirely out of reach under a mass of adhesions. After repeated attempts I was able to fix it by means of tenaculum forceps applied to the outside of the duct, but just as the incision was about to be made, it again slipped away. On the second attempt it was grasped so firmly with the forceps that it broke into numerous small fragments, which were not removed, as it was probable that they would easily pass out into the intestine. He rallied well and seemed much better; pain and tenderness were entirely relieved; temperature became normal; jaundice disappeared, and remained in good condition until about the commencement of the sixth day, although the pulse remained weak and irregular throughout. On the sixth

day he failed rapidly and died, apparently as a result of the condition to which he had been reduced previous to operation. In this case also there is every reason to believe that early operation would have been entirely successful.

In the other fatality which occurred in a case where I assisted at operation there was a marked cholemia and prostration, the result of months of suffering from obstructive jaundice with frequent attacks of gall-stone colic. Operation had been advised months before but refused, and death in this case was also due to conditions which existed before operation.

The other nine cases all made excellent recoveries. While my mortality rate has been high, not enough cases have been operated upon from which to base any conclusion. But I believe that operations upon the gall-bladder and bile-ducts before serious degenerative changes have taken place must be almost always successful, and I also believe that a little more experience will make us realize that they are not more serious than operations upon the appendix.

In case five just alluded to, I was surprised at the ease with which the parts could be differentiated, although I was entirely without assistance during the greater part of the operation.

William J. Mayo of Rochester, Minn., reports operations upon three hundred and twenty-eight cases of gall-stone or for diseases involving the gall-bladder and biliary-ducts, operated upon by himself and his brother, from June twenty-fourth, 1891, to February twenty-eighth, 1902. Taking from these the seventeen cases of malignant disease and we have three hundred and eleven operations with eight deaths, a mortality of about two per cent. In two hundred and fourteen cases the stones were located in the gall-bladder or cystic-duct or both, with two deaths. In thirteen cases the stones were found outside of the gall-bladder and biliary-ducts, having passed out by ulceration and perforation through the

walls of the gall-bladder or ducts. In these there were no deaths. Thirty-four cases were found to be cholecystitis without the presence of stones, and in these there were five deaths, the high mortality due, the author thinks, to the large number of cases in which the infection was of a serious nature. In thirty-one cases stones were found in the common duct, with one death.

While we cannot all expect to equal these statistics, it is probable that they represent pretty accurately results which will be obtained by most operators in the near future. "Certainly the slight dangers of early operation stand in no sort of a relation with the great dangers of the disease itself."—(Kerr).

Allusion has been made to the similarity between diseases of the gall-bladder and bile-ducts and appendicitis, and this subject is just now receiving considerable attention. Dr. Roswell Park has recently written an article entitled: "Why should we not treat the gall-bladder as we do the appendix?" (*American Medicine*, July 12, 1902, page 54). There certainly is a marked similarity in many respects, and I believe that the time has now come when just as recurrent attacks of pain and tenderness in the right iliac fossa, with slight rise of temperature and pulse call for removal of the appendix, so will similar conditions in the right hypochondrium with tenderness under the edge of the right rectus call for exploration in that locality, with an almost certainty that some abnormal condition will be found in the gall-bladder or biliary passages.

When the preparation of this paper was completed it was expected that others would call your attention to the diagnosis of these conditions and the technique of the different operations. This not having been done, I regret exceedingly that their consideration at this time would prolong this paper beyond the limit which should be allowed to any one individual at a *meeting of this kind.

*Read before the semi-annual meeting of the Hartford County Medical Association.

SURGERY OF THE LIVER.

D. F. SULLIVAN, M.D.,

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Surgical literature of the past year has been rich in articles upon the liver, interest in this organ and its diseases having been greatly stimulated by the brilliant work of Kehr. Three points have claimed the especial attention of physicians and surgeons alike—viz., the etiology of gall-stones, the early diagnosis of gall-stones, and the question of operative or non-operative treatment of gall-stones.

ETIOLOGY OF GALL-STONES.

While research has not as yet definitely established the etiology of biliary calculi, the opinion is clearly gaining ground that bacteria are in some way or other responsible for their formation. The duodenum always contains bacteria which according to some observers, often make their way into the common duct without disturbing the health of the individual. Under certain circumstances, the exact nature of which is not yet agreed upon, the bacteria press further up the biliary passages, or possibly the lymphatics, and give rise to sufficient inflammation to cause the precipitation of solid matter in the bile and thus lead to the formation of calculi.

Shattuck gives the following points in connection with the etiology of gall-stones as those upon which we have positive knowledge. The stones are composed mainly of cholesterin. Bacteria are very common and may form the nucleus of the stone. The nucleus may also be formed in bilirubin or a foreign body. Cholesterin is normally held in solution by the bile. Stasis, catarrh,

and a change in the reaction of the bile lead to its precipitation. Gall-stones are rare under thirty, are about equally common in each decade from thirty to sixty, and are much more frequent after sixty. They are three or four times as common in females as in males. This may be due to the sedentary life of women, to clothing, which impedes respiration motion, and to pregnancies, with resulting relaxation of the abdominal walls. Gall-stones are said to be common in the insane and in subjects of chronic heart-disease. In both instances an inactive life may explain the frequency.

Modern bacteriology throws much light on the origin of catarrh of the gall-bladder. The conclusions which seem to be justified by the careful study of the literature up to date are as follows:

1. A sterile foreign body does not lead to gall-stone formation, though a sterilized gall-stone may be penetrated by at least the colon bacillus.

2. The contents of the hepatic and cystic ducts and also of the gall-bladder are usually sterile.

3. The common duct not infrequently contains bacteria, a fact readily explicable by the relation of the duct to the intestine.

4. Gall-stones have been produced experimentally by a number of observers with a number of organisms. Mignot failed with virulent cultures, while he succeeded with attenuated cultures alone or in connection with a foreign body.

5. The presence of bacteria has been demonstrated in connection with a considerable proportion of cases of gall-stones.

6. The clumping of the typhoid bacillus led Richardson to think this peculiarity might play an important role, and he produced gall-stones in a rabbit by the introduction of a small amount of a clumped bouillon-culture into the gall-bladder.

7. The colon bacillus and the typhoid bacillus are the most common bacterial agents in gall-stone formation.

Thus it would seem that stasis of the bile is a very important factor. This, once established, permits a change in the reaction of the bile contained in the gall-bladder, favors a precipitation of bilirubin calcium, increases cell-desquamation from the gall-bladder wall, and affords a nidus for the growth of bacteria possibly derived from the blood, probably usually from the common duct and intestines. The broad therapeutic deductions are, hence, to forestall in all ways in our power causes of stasis and to annihilate typhoid fever. The combat is with fashion and disease, and the former is less hopeful.

DIAGNOSIS OF GALL-STONES.

While the diagnosis of gall-stones and the determination of the location of the stone is often such a difficult matter that it cannot be settled by any rule of thumb, yet a careful sifting of the symptoms and weighing of their individual values will usually enable the clinician to form a probable diagnosis. Kehr made the start in the right direction by classifying the varieties of surgical hepatic trouble and setting down the symptoms associated with each, as far as his wide personal observation went. This work has been extended by others, and a table arranged by Brewer is especially useful, though it cannot be claimed for it that it is a perfect guide to a solution of every case for diagnosis.

In preparing this chart he has made use of the symptoms mentioned in the report of cases by Kehr and others. For convenience he has arranged the different pathological conditions under the three heads of calculous disease, inflammatory disease and new growths.

Means emphasizes the fact that gall-stones never occur in the first decade of life, and rarely in the second and third decades. They occur more frequently in women than in men. The only pathognomonic symptom is the discovery of gall-stones in the feces; this, unfor-

unately, does not occur in very many cases. A summary of the symptoms shows a paucity of characteristic ones. However, with the presence of gastric disturbances, paroxysmal pains in the region of the gall-bladder, tenderness in the right hypochondrium, jaundice with pruritus, ashy-colored stools, highly colored urine containing bile pigments, enlargement of the liver, and all of these symptoms occurring in a patient beyond thirty and of sedentary habits, a diagnosis of cholelithiasis can be made with a great deal of certainty.

McGrew thus contrasts the symptoms of obstruction of the cystic duct and of the common duct:

SYMPTOMS OF CYSTIC DUCT AND COMMON DUCT OBSTRUCTION
CONTRASTED.—CYSTIC DUCT SYNDROME.

a. Attacks of gall-stone colic, exhibited by pain, rigor, vomiting, rise in temperature, symptoms of collapse—the pain being excruciating and referred to the right hypochondriac and umbilical or epigastric regions.

b. If the gall-stone impaction is permanent:

Tenderness in the right hypogastrium on pressure.

Soreness and dragging pain in the right side.

Retention cyst (dropsy) of the gall-bladder, causing a slowly increasing retention of the organ, which may reach enormous size, filling the right side of the abdominal cavity.

c. If the gall-stone impaction is temporary:

The offending body may slip back into the gall-cyst and only a slight hypogastric tenderness mark the presence of gall-stones until another attack of colic occurs. Ordinarily, dyspeptic disturbances and fleeting attacks of gall-cyst tenderness mark the interval between attacks. Occasionally a bladder filled with gall-stones may be palpated below the border of the liver, and the stones thus detected, or grating sounds may be auscultated.

The offending body may pass onward into the common duct, when its history belongs in the opposite column.

COMMON DUCT SYNDROME.

a. Attacks of gall-stone colic, paralleling the contrasted condition, except that the pain is referred to the right hypochondriac and right subscapular or right shoulder regions.

b. If the gall-stone impaction is permanent:

Tenderness and discomfort in the right hypogastrium.
Jaundice.

Bile in the urine.

Absence of bile in the stools.

Stools fatty, white, offensive.

Constipation.

Enlargement of the liver.

Slight distention of the gall-bladder.

Pulse slowed to sixty, fifty or even forty.

Nervous symptoms of cholemia.

c. If the gall-stone impaction is temporary:

The offending body passes onward into the duodenum and may be washed from the stools. It leaves a lingering tenderness in the hypogastrium. The liver shows temporary jaundice and distention of the gall-bladder. Constipation is common, and the stools and urine show more or less change, temporary in character. The symptoms due to the stones remaining behind are similar to those of the opposite condition.

The symptoms of obstruction of the common bile-duct vary, Deaver says, according to the character and cause of the obstruction. Acute obstruction gives a sudden attack of colic with nausea and vomiting, pain, tenderness and in some instances collapse. The colic is due to the efforts of the duct to expel the foreign body. It is therefore analogous to the colic of appendicitis. The colic may cease when the stone has been forced into the duodenum, or when it drops back into a pouch in the duct, as the ball in a ball-valve. Besides the pain in the liver there may be agonizing pain radiating to the right

shoulder or referred to the epigastrium or umbilicus. Tenderness is evident even upon slight palpation, and if cholecystitis exists the slightest touch is painful. The rigidity of the right rectus muscle is an early symptom, while rigidity of the other muscles in the right upper quadrant of the abdomen occurs later. There is an increase of temperature at the onset of the inflammatory stage. If the obstruction is of short duration jaundice will be absent. Nausea, vomiting, and collapse are of reflex origin. The last named symptom may presage rupture of the duct.

Permanent obstruction, whether from the presence of a stone or malignant disease, is always accompanied by jaundice. If due to malignancy the jaundice will be progressive. An irregular, interrupted temperature is pathognomonic of the presence of gall-stones. Malignant disease which leads to obstruction of the duct usually starts in the head of the pancreas. The symptoms in such cases are digestive disturbances, progressive loss of weight and strength, constant pain, the absence of characteristic colic, and the presence of a tumor in the epigastric region, without elevation of temperature.

GALL-STONE AND APPENDICITIS.

The difficulty of making a differential diagnosis between gall-stones and appendicitis has been referred to by several writers. Ochsner comes to the conclusion, from a series of operations performed by himself, that in thirty-three and one-half per cent. of all gall-stone cases appendicitis is coexistent, while perhaps ten per cent. of all patients who suffer from appendicitis have gall-stones. These percentages are sufficiently great to make it desirable to examine the appendix during an operation for gall-stones and vice versa. He recommends in doubtful cases an incision through the right rectus abdominis muscle, which can be extended either upward or downward according to the necessities of the case, so as to permit the operator to reach either the gall-bladder or the appendix.

OPERATIVE TREATMENT OF GALL-STONES.

Richardson takes up the analogy between an attack of appendicitis and an attack of biliary colic. For him this analogy leads at once to the practical question: What are the indications for operation in the presence of gall-stones? The only rational answer, in his opinion, is an exploration as soon as the diagnosis is established. The steps in his reasoning are worth careful study.

Richardson says that the analogy between the appendix and gall-bladder is in many ways striking, but is not perfect. The acute infections of the gall-bladder, for instance, result in changes in the bile, distention of the gall-bladder walls, infection of these walls, and a pericholecystitis. The distensibility of these walls, however, prevents, except in rarest instances, gangrene and perforation. Infections of the gall-bladder concern its contents more than its walls. Sterile bile becomes a culture-medium of micro-organisms, and later involve the gall-bladder walls themselves. In appendicitis the contents, always septic, must invade the walls of the appendix to produce any lesion whatsoever other than distention with septic fluids. Moreover, infections of the gall-bladder walls do not often cause gangrene, necrosis being rather the result of pressure from over-distention than from an infectious thrombophlebitis. In the occasional gangrene of thickened gall-bladders it is not improbable that necrosis is caused directly by infection of the thickened and poorly-nourished wall, with thrombosis of its vessels and hemostasis. In such cases the course is not unlike that of the thickened appendix, the gangrenous process being quite as rapid and as fatal. The situation of the gall-bladder, even when infected and inflamed, is one of comparative isolation. The isolation makes general peritoneal infections difficult, for they rarely take place unless the gall-bladder wall gives way entirely and the abdomen is flooded with septic bile. Infections of the appendix rarely cause remote changes—

tuberculosis and carcinoma. Gall-bladder lesions, on the contrary, frequently cause cancer.

Although this analogy between the gall-bladder and the appendix is imperfect as to anatomical structure, capacity, and situation, it is very close as to the operative dangers and favorable results. The neglected gall-bladder endangers life quite as surely, though not as rapidly, as the neglected appendix. Its immediate course may be less fulminating, but the agony is more prolonged and the sum total of suffering is greater. The danger of removing gall-stones by modern methods in the hands of skillful surgeons is exceeded by the danger of the passage of a single stone from the gall-bladder to the duodenum, just as it may truly be said that the danger of a single attack of acute appendicitis vastly exceeds that of the intercurrent operation. Hence gall-stones should be removed from the bladder as soon as their presence is reasonably certain unless the diseased condition of the other viscera makes the hazard of the operation greater than the hazard of the gall-stones themselves. The strongest arguments in favor of operation are the pathological changes, immediate and remote, wrought by the gall-stones themselves. The surgeon sees gall-bladders in every state of contraction and dilatation; with adhesions recent and easily separated, or old, cartilaginous, and inseparable; containing bile varying from normal to purulent and even putrid; with a single gall-stone or with several hundred; in not a few instances malignancy beginning or fully developed. The cystic duct will often be found plugged by a stone, causing dilatation of the gall-bladder. The surgeon may find an acute cholecystitis, and even dilation even to bursting with purulent secretions; impacted gall-stones in the common duct, with enlarged liver and jaundice; cholemia and its serious manifestations. In not a few cases the most fatal complications will have arisen before the surgeon has had a chance to attempt relief—rupture of the gall-blad-

der and general peritonitis, purpura, hemorrhage, exhaustion, and those other and rarer complications by which the history of gall-stones is ended. On the other hand, the family physician sees, it must be admitted, not a few patients who after one or two attacks of gall-stones remain permanently well and in whom none of these immediate or remote pathological changes are ever noted. Furthermore, the pathologist will often find the gall-bladder distended with gall-stones which have never given the least sign of their presence. However, an early operation carries with it only a slight risk and promises an almost certain success. The removal of gall-stones from a normal gall-bladder, in the experience of Richardson as of many others, has been without mortality. The proportion of such cases is not as large as it should be, for few patients come for operation until they have been forced to it by years of repeated attacks of colic or by the unbearable sufferings of a permanent jaundice.

What are the indications, then, for operation on gall-stones? In Richardson's opinion, "the indication is the diagnosis of the gall-stones in the gall-bladder. When this diagnosis has been made the gall-bladder should be explored if there is no contraindication in other viscera. A slight attack of gall-stone colic after which a faceted stone is found in the stools indicates operation, but a single attack after which a single non-faceted stone is found does not. Repeated attacks of severe colic even if stones are found in the stools, strongly indicate exploration, especially if there is tenderness in the gall-bladder with fever; for stones are probably confined in the gall-bladder or at its outlet, and the spasms are ineffectual efforts of the gall-bladder to expel them. All cases of acute cholecystitis demand operation if seen early, unless the symptoms are rapidly improving, and then they require operation after the subsidence of the acute attack. Repeated attacks of gall-stone colic indicate operation,

even if no stones are discovered in the stools and even if the symptoms are so mild as not to demand it.

True conservatism in surgery of the gall-bladder—the lesions of which are purely mechanical—requires, as the only rational treatment, surgical measures which themselves are purely mechanical, though natural relief in gall-stones is not as impossible as in stones of the urinary bladder; the former because of their occurrence, cause far more suffering and death than do the latter. Furthermore, the complications of gall-stones are in many instances quite as disabling as those of urinary calculi, and they often are more rapidly fatal.

A most pernicious argument against operative measures in gall-stone affections, as in appendicitis, is the occasional quiescence, and the occasional complete recovery after severe symptoms; but in neither lesion can any man predict the probable course. Removal of the appendix that has offended or is offending is the only common-sense method of treatment, as most experienced operators and clinicians will admit, the chief difference of opinion being as to the safest time for the operation. So in patients who have suffered from gall-stones—who are suffering from them—it is but common sense to advise simple and safe methods of sure removal, rather than the uncertain and dangerous courses of natural evolution. In both diseases early operation cannot but be regarded, in the light of experience and common-sense, as a life-saving procedure gained at a minimum of risk."

NON-OPERATIVE TREATMENT OF GALL-STONES.

While the views of Richardson are doubtless endorsed by most surgeons, physicians are not ready to advise operation as soon as a diagnosis of gall-stones has been made. For example, take the remarks made by Janeway and Kinnicutt in discussing a long-standing case of obstructive jaundice—fatal, it is true, and without operation.

Janeway said he thought it was not advisable to operate under such circumstances on account of the danger of hemorrhage incident to the long duration of the jaundice. This patient died about a year after Janeway first saw her. The post-mortem examination showed a stone in the duct, while the duct was surrounded by inflammatory adhesions. Janeway said that no general rule could be given as to the length of duration of jaundice which would make an operation inadvisable.

A fatal hemorrhage may follow an operation performed only four or five months after jaundice appears. Kinnicutt advises against operation, in the presence of cholemia on account of the danger of fatal hemorrhage.

TECHNIQUE OF OPERATION.

Mixer believes the surgeon should not wear gloves for the operations. The incision through the outer part of the rectus parallel to the fibres. The ducts are first examined by passing the forefinger of the left hand through the foramen of Winslow, surgeon's back to the patient. Two threads passed through the wall of the gall-bladder, to sustain it, do less damage and take up less room than forceps. If the bladder contains much fluid, it should be removed before it is incised, if possible. Mixer uses a glass tube with flaring end and tied into the gall-bladder by a heavy silk thread; the bile flows through a rubber tube attached to the glass drain, thus avoiding striking of the gall-bladder and lessening considerable pain of the patient. In complete removal the peritoneum is removed on either side at its reflection from the liver to the bladder. Usually the cystic duct and artery may be tied together.

INDICATIONS FOR DRAINAGE.

1. In acute or chronic inflammations of the gall-bladder or ducts which are not amenable to medical treatment and which occur independently or as complications or sequels of infectious diseases:

2. In gall-stones in the bladder or ducts producing frequent attacks of biliary colic with or without mild jaundice :

3. In enlargement of the bladder and with pressure of pus :

4. In ulceration cysts and incipient gangrene :

5. In premature rupture :

6. In suppurative inflammation of the ducts :

The left hand, covered with a glove, is introduced through the incision above the symphysis; the gall-bladder is found and the stone pushed up into the fundus and against the abdominal wall, where it meets a decided prominence. The free hand is next engaged in liberating the stone by cutting directly down through the tissues of the wall until the bladder is opened and the stone escapes.—(Kelly).

FREQUENCY OF GALL-STONES.

The frequency of the occurrence of gall-stones has been variously stated. The following table is from statistics collected by Schroeder, covering 1,150 autopsies:

Age.	No. of Autopsies.	Cases with Gall-stones.	Percentage of Gall-stones.
0—20	82	2	2.4
21—30	188	6	3.2
31—40	209	24	11.5
41—50	252	28	11.1
51—60	161	16	9.9
60 and over	258	25	25.2

In this series 4.4 per cent. of the males had gall-stones and 20.6 per cent. of the females. A review of the record of a thousand autopsies made in the Johns Hopkins Hospital showed that gall-stones were found in 5.9 per cent. of the cases, or in 4.8 per cent. of the males and 7.8 per cent. of the females. This is, perhaps, the first time that statistics of any considerable number of cases has been presented from America.

TEN CASES OF CHOLECYSTITIS.

WITH OPERATION.

HARMON G. HOWE, M.D.,

HARTFORD.

Mr. President and Gentlemen:

In giving sketches of the following cases I have curtailed the history of each as much as possible, only noting essential points, as a paper of great length upon this subject is not called for at this time, and many of you are familiar with the ordinary conditions following operations upon the Gall Bladder.

CASE NO. 1

Mrs. L——, German, sixty-two years of age, widow, weight about two hundred and fifty pounds, has a history of periodical attacks of pain about the region of the gall-bladder but no record of having passed any gall-stones. Usually relieved by one hypodermic injection of one-quarter to one-half grain of morphine, but sometimes requires two or three full doses. On examination found her with a remittent temperature which after a few days developed into chills, morning and night, marked tenderness and pain over the gall-bladder, which could be mapped out well below the ribs. The subject being fleshy the gall-bladder could not be outlined in the early part of her sickness. Two weeks after the beginning of the fever (which at first was supposed to be malarial) it was decided to operate.

OPERATION.

The gall-bladder was found to extend well down below the umbilical line, being very tense and full, in fact quite the largest one I ever saw. On aspiration a

quantity of semi-purulent bile was withdrawn and at the last some pus. Five hundred and two gall-stones were removed, the bladder thoroughly irrigated, stitched to the edges of the wound, drained and the wound dressed. The patient made an uneventful recovery, the temperature not rising above one hundred degrees after the operation. Were the gall-bladder small in this case, it would have been a very difficult one to operate upon on account of the very thick abdominal walls, but the bladder being enlarged it was easily manipulated. The biliary fistula closed at the end of fifteen weeks.

CASE NO. 2.

Mrs. H——, Anglo-Saxon, age forty-eight, married, weight about one hundred and forty pounds. Has a long history of pain about the stomach, requiring the constant use of morphine to relieve her. No gall-stones have been found. She first came to me with the history of stomach disorder, supposed to be cancer. Upon examination found a mass in the region of the Pylorus. The patient had a temperature ranging two or three degrees. Exploration was decided upon. No diagnosis was made.

OPERATION.

The incision was made near the median line and of good length. Found the gall-bladder buried in a mass of adhesive and extraneous tissue fully two inches to the left of the ordinary position. The bladder was opened and drained. It could not be moved from its bed. Two small stones were found in the bladder. The patient made a good recovery and the gall-bladder closed in about four weeks, the stomach symptoms entirely subsiding.

CASE NO. 3.

Male, Anglo-Saxon, aged six. History of supposed malarial fever, for seven weeks, but of late the attending physician states that pain and tenderness have been

marked in the region of the gall-bladder. Temperature reached 104° daily; no positive diagnosis was made. Exploration decided upon after the discovery of a small tumor in the region of the gall-bladder.

OPERATION.

Upon incision over the region of the gall-bladder this body was easily exposed and presented a tense shining surface, with few adhesions to the liver. Upon aspiration a purulent fluid was drained off, after which a free incision was made revealing no stones, but a very unhealthy condition of the mucous membrane, with closure of the Cystic duct. The bladder was thoroughly cleaned out, stitched to the edges of the peritoneum and tissues and packed with Iodoform gauze. The temperature at once went down, the bile began to flow on the third day, and the boy made a nice recovery except that the bile continued to flow from fistula for about a year.

CASE NO. 4.

Mrs.——, Anglo-Saxon, age forty, spare, with history of Bilious Colic for seven years, passing one stone some time ago. Examination showed temperature of 102° , pulse rather feeble, small tumor over the region of the gall-bladder with marked tenderness. Diagnosis, Cholecystitis with probable gall-stones. .

OPERATION.

Upon opening the gall-bladder, first by aspiration, a thin colorless serum was evacuated, next by knife, freely, a stone of the size of a hazelnut was found well imbedded in the opening of the Cystic Duct, perfectly occluding the bladder from the Common Duct. Bile began to be discharged on the second day following the operation. An uneventful recovery was made, the temperature at once abating. I do not know how long the bile continued to flow.

CASE NO. 5.

Mrs. J——, age about thirty-two, no history of gall-stones or trouble until recently, not fleshy. Has history of supposed malaria, temperature ranging from 99° to 102°, accompanied by tenderness and pain over the region of the gall-bladder. Bowels not indicative of the suppression of bile, so conclude that the Common Duct is clear. Diagnosis :—Cholecystitis with occlusion of the Cystic Duct.

OPERATION.

The usual incision revealed a gall-bladder about twice the ordinary size. By aspiration quite a quantity of seropurulent fluid was withdrawn before free incision. The bladder was in a state of inflammation and evidently swollen to such a degree as to shut off communication with the Common Duct. It was drained and treated in the usual way, bile beginning to flow about the fifth day, the patient making a good recovery. I do not know how long the fistula remained open.

CASE NO. 6.

Mr. S——, age forty-five, Anglo-Saxon, married, weight 150. History of sudden onset of pain which was relieved after three days, rather suddenly, and followed by temperature, which in turn abated after three days, leaving tenderness and edema of the surface in the region of the gall-bladder. Temperature normal. Diagnosis Cholecystitis with possible rupture of the gall-bladder.

OPERATION.

The usual incision was made, the gall-bladder found to be ruptured, the contents consisting of innumerable "millet seed" stones spread about the intestines. The gall-bladder was perforated on the left side, a gangrenous patch showing at this point. It was incised at the fundus as usual, thoroughly washed out, drained with a tube, packed all about with Iodoform gauze, and stitch-

ed to the abdominal wall at its upper border. The gauze was removed gradually and the patient made a good, but slow recovery. At the end of a year the sinus broke out and discharged a little bile for a few days and then closed again.

CASE NO. 7.

Mrs. W——, white, married, age forty-three, very fleshy. History of several days of pain in the region of the gall-bladder with a temperature ranging four degrees with history of chills daily; tenderness well marked over the gall-bladder. Diagnosis, Cholecystitis with probable stones. In consultation it was decided to operate. Postponed one day through deference to friends.

OPERATION.

The incision was a deep one and therefore had to be long, in the usual situation; the gall-bladder was found somewhat distended but not large. It was aspirated and a small quantity of dark fluid removed. Upon incision a large stone, the size of a butternut, was removed, farther search proved this to be the only one. The position of this was such as to shut off the bladder from the Cystic Duct, and its removal cleared the passage. It was drained in the usual way and a quick complete recovery was made. The bile began to flow from the bladder to the surface on the third day and ceased at the end of the week.

CASE NO. 8.

Mrs. M——, age forty-two, married. History of pain over the gall-bladder at various times in the past two years. Recovered from an attack a week ago and now has another accompanied with chills and fever, with tenderness over the gall-bladder. Diagnosis, Cholecystitis with probable stones.

OPERATION.

Aspiration after incision revealed a very little thin

dark fluid; upon opening the bladder freely, four small faceted stones were removed and the wound drained and dressed in the usual way. The patient made an uneventful recovery; the bile began to flow from the drain the first day and ceased about the fourth week.

CASE NO. 9.

Mrs. C——, age forty, married. Taken with severe pain in the region of the gall-bladder late in the afternoon; suffered quite severely all night; in the morning found her to be in pain, but not severe enough to indicate a stone in the region of the gall-bladder. Quick pulse of about one hundred and twenty; temperature 102.5° ; no vomiting. Patient was very thin in flesh, but could not be examined sufficiently to be sure of the condition of the gall-bladder. Diagnosis, Cholecystitis, probably without stones. After consultation that afternoon, operation was decided upon early the next morning. Temperature 103° ; pulse and heart were flagging a little and it was thought best to give strychnine rather freely during the night, in preparation for the operation the next morning. At 8 a. m., found the patient a good deal worse, temperature 104° ; but decided to go on and try to operate upon her. She took the anesthetic badly and upon placing her upon the table all preparation was suspended, as it was thought that she was dying. However after administration of normal salt solution under the skin, and 1-5 gr. of strychnine hypodermically she rallied and the operation was accomplished. The gall-bladder was evidently occluded, contained only about two ounces of dark fluid, and was very much inflamed. Neither the ducts nor bladder contained stones. The bladder was drained and irrigated with a tube, and the woman was put to bed in better condition than when the administration of an anesthetic was commenced. Temperature 103.5° . Bile stained the dressing that afternoon, but her general condition became worse, (tem-

perature 105° .) and all hope of saving her was given up early in the evening. No post-mortem was held.

CASE NO. 10.

Mrs. J——, age thirty-eight, married, very fleshy, weight about two hundred and seventy-five pounds, height five feet four and one-half inches. Has history of intermittent attacks of bilious colic, for a period of eight years, lately becoming more frequent, until she is having an attack every few days, requiring a hypodermic of morphine to relieve her every time. Examination revealed a slight tenderness over the gall-bladder. She had no history of Jaundice at any time.

OPERATION.

She had been well prepared anticipating some trouble in reaching the bladder, from the thick walls, as I had one assistant. By making a long incision the bladder was exposed and found enlarged to about twice its natural size. Aspirated a clear fluid first, deeper a sero-purulent fluid, then opened freely and found one stone imbedded in the tissue of the bladder requiring great ingenuity and patience to remove it. The stone was egg-shaped, about the size of an english walnut, with a rough surface, pushed to the lowest part of the bladder, the tissues and bladder growing around it in an hour-glass shape. There had evidently been no connection with the common duct for a long time. The case did well, the bile beginning to flow on the third day and then closing on the third week.

REMARKS.

In these ten operations, in none of which was the bladder removed, in my opinion, only one would have been in any way benefited by its removal, that being case number 6, in which there was a gangrenous spot on one side and a general friable condition of the tissues. In-

deed it was necessary to wall off the whole bladder with gauze for a few days. If the bladder had been entirely removed, it would have been better surgery. In about ten per cent. of all cases of Cholecystitis it is advisable to remove the gall-bladder. Special cases where this is the best proceeding are, extreme friability of the bladder, the presence of stones which in removal will injure the bladder irreparably, and rupture. But in all Cholecystotomy, the Common and Hepatic ducts must both be free and open. To amputate the bladder with the occlusion of the Hepatic duct, and close the wound, knowing that there was no outlet for the bile through its natural passage would probably cost your patient his life. The displacement of the gall-bladder in case 2 is infrequent and interesting.

In this case the bladder was surrounded by adhesions, probably thrown out from the persistent inflammation of the gall-bladder. The possibility of its being swung quite out of its natural position should be borne in mind in diagnosis, as well as in operation.

In case 1 the extreme size of the bladder extending well below the line of the umbilicus, might suggest other conditions to the diagnostician were it not for the history of constantly recurring Bilious Colic.

The age of case number 3 (six years) is certainly exceptional, and carries weight in the lesson that we must look for these cases in all ages from childhood to old age although occurring more frequently in persons between forty and fifty years of age.

Case number nine was one of extreme virulence; which in a person already emaciated and unable to stand a severe sickness of any kind, quickly brought a state of collapse, which the operation, and the removal of the cause did not remedy.

No particular interest is recalled of the other cases with the exception of case 10. In this woman the ab-

dominal wall contained three to four inches of fat which with an unusually heavy muscular and tenderness developed, made the case one of extreme difficulty to operate upon, with but one assistant at command. Here it was absolutely necessary to extend the incision well down the abdomen in order to bring the gall-bladder into view. I can see no benefit in trying to curtail the length of your incision if by doing so you are hampered in your work.

The X-Ray is of no benefit in diagnosing the presence or absence of gall-stones; the light rays pass through without sufficient shadow to show the presence of stones.

None of the cases have recurred up to date. In closing I wish to make a plea for the early operation upon recurring Bilous Colic, supposed to be caused by stones. The drainage operation is one of the simplest of all abdominal operations, and one of the least dangerous to life. The physician or surgeon in meeting these cases, should endeavor to bring the patient to see the benefit of the operation, and the injury proceeding from constant resort to large doses of morphine for the relief of the pain, if left to themselves.

Do not wait until inflammation of the gall-bladder calls your attention to a pathological condition of the walls and lining membrane, and perhaps to an absolute closure of the Cystic Duct, and the loss of the normal antiseptic properties of the fluid within, but operate upon the healthy bladder and get a quick recovery just as soon as an absolute diagnosis is made.

DISCUSSION.

Dr. Carmalt: Mr. President, you called upon the gentleman for a few words and he replied that he would rather discuss some of the papers. Now this is one which Dr. Monroe can discuss.

Dr. Howe: "I wish the paper was better. It would delight me extremely to hear from him."

Dr. Monroe: I wish that I could give as good and square a paper myself. I think it was very interesting. The question of gall-bladder surgery is one that is very hot just now and I firmly believe that within the next three years we are going to have more cases reported treatable and ten times as many cases as the Doctor has reported to-day with the same amount of successful surgery. There are a number of things that interest me very much in this paper. In the first place, the promptness with which the Doctor deals with the early stages of the disease. In our experience in Boston we found that these cases were not dealt with in their early stages. The risk is extremely small then. I am sure that Mayo with his 600 operations has proved that the operation in these gall-bladder and stomach cases, if attended to early before there is jaundice, is an extremely harmless operation.

There is another question which came up in his paper, that is the effusion of the gall-bladder, which I think is more frequent than we realize. I do not know from the case of gall-stones, but it is not at all uncommon to find gall-stones that hang as a pear hangs on the stem. In that way effusion takes place.

Another question, the question of the sepsis that is present in the gall-bladders. We have carried out a considerable number of experiments in the surgery of the gall-bladder which were presumed to be perfectly successful and the appearance of the bile, so far as any appearance goes, was perfectly normal. I think this very suggestive and it will explain the occasion of deaths that occur from opening gall-bladders that look otherwise perfectly healthy.

Another question that this recalls to me is the diagnosis of these cases as gall-stones in connection with tabes. I have been connected with the operation in several cases

when I supposed the diagnosis was perfectly correct as gall-stones, in which a more careful examination or examination after operation showed the existence of tabes. Even in these cases you will get jaundice that apparently was called, upon examination, gall stones. Why, I do not know. Gall-bladders undergo Cholecystitis.

TUMORS OF THE MAMMARY GLANDS.

J. W. WRIGHT, M. D.,

BRIDGEPORT.

It is not my intent in this paper to detail to you the familiar picture of breast tumors and the treatment of same as laid down in the text-books; but in order to emphasize what I have to say, it is essential that a brief glance at the accepted conditions and the treatment of these tumors, be first considered. They may be divided into two groups: 1st. The malignant growths. 2d. The so-called benign growths,(if a foreign growth can be called benign.)

Of the malignant growths we have carcinoma, (five varieties; the ordinary, scirrhus and atrophic scirrhus, encephaloid, and the colloid) sarcoma and endothelioma, which should be classed together.

Of the benign growths we have fibro and cystic, adenoma, myxoma and cysts.

Of all these tumors eighty per cent. are classed as carcinomatous, two per cent. as cysts, and the remaining eighteen per cent., of the other varieties.

The treatment of the malignant growths, the only possible treatment, is removal, not only of the whole breast but the axillary glands and by some surgeons the cervical glands. This may be performed by knife or caustics. The percentage of cures in carcinoma is twenty to thirty per cent. Of the benign growths the treatment is as follows: Cysts may be sometimes incised or aspirated and cured, but should be excised if large. Fibro-adenomas and myxomas should be removed. It therefore follows that ninety-eight per cent. of breast tumors should be treated by removal with knife or cautery, and the remaining two per cent. may be cured by aspiration or in-

cision, provided the diagnosis is correct and the etiology of the cyst be not due to malignant growth.

Not a very cheerful outlook for a woman, sensitive, shrinking from a surgical operation which will deprive her of an essential portion of her physical charm just at that period of her life when she is most desirous of retaining her vanishing beauty. No wonder they turn from the shining steel which confronts them with mental distress and conceal their infirmities so long as possible, until concealment no longer practical they seek relief too late. In Dante's *Inferno* over the portal to the nether regions is the inscription: "Let all who enter here leave hope behind." Can anything more cheerful be said of those with mammary tumors who enter the portals of the surgeon's office? It was once the chief province of the dentist to remove all offending teeth; it is now their greater work to so preserve them that it may not be necessary to remove them. Has surgery so little advanced that we still must mutilate to cure, or will the future be a reparative rather than a radical surgery?

While it is not within the bounds of this paper to consider subjects outside, it may be apropos to speak in passing of improved surgical technique in the repair rather than the removal of diseased conditions pertaining to the ovaries, tubes and uteruses, the saving and repair of mutilated members through the knowledge of pathogenic germs and antiseptics. The researches of Roswell Park and his assistants in Buffalo, and many others working along the same lines, give us reasonable assurance that carcinomas at least, can be classed as growths due to the presence and slow-growing increase of a specific germ, whose entrance to the breast is through the nipple and milk channels, while the previous presence of abnormal conditions, the result of injuries, and all suppurative conditions, favor the development of the malignant growth.

It is my sincere conviction that two methods offer a reasonable ground for hope that the breast affected with mammary tumors may be saved and the patient restored to health without the more drastic method of total removal. The first and possibly the best one will be the use of the Roentgen ray for the destroying of abnormal growths. You are doubtless already familiar with the many extravagant claims made for this treatment within the past year. One fact alone seems well established, that superficial growths can be removed by its use. Epitheliomas of the lip and face I have seen gradually disappear until the normal appearance indicated a complete cure; scirrhus masses, recurring in the scar of amputated breasts, have melted away. If such result can be obtained in external growths, it seems reasonable that deeper growths can also be influenced. Dr. Francis H. Williams of Boston, over a year ago upon this subject writes as follows: "I believe the X-rays may render service in the treatment of certain phases of cancer of the breast. In these cases also, the earlier the treatment is begun, the better. Benign indurations may also be successfully treated. I have had eleven cases of cancer of the breast, and most of these, even the ones in which the growth was so large as to involve the whole breast show some improvement." On May first of the present year I wrote to Dr. Williams, asking if further experience had confirmed this belief. I received the following reply: "Further experience does confirm the opinion which I had more than a year ago in regard to the use of the X-ray in the treatment of certain phases of cancer of the breast. I believe that further study of this question will show us in which cases the X-rays are likely to be of most value and how they may be used to best advantage. I have presented this question more fully in the third edition of my book, which will be out I suppose not later than the middle of the month. Very truly yours, Francis H. Williams."

In passing, let me state for the benefit of some who may not know, that Dr. Williams is a most conservative, careful and painstaking observer, and has a wider experience in the use of the X-ray than any other author with whom I am familiar.

In March, 1903, Dr. W. B. Coley of New York, writes upon this subject, "These results, while they show that the X-ray exerts a powerful inhibitory influence upon some malignant tumors, sufficient in many instances to cause marked decrease in size, and in some cases entire disappearance, there is a tendency to speedy recurrence when treatment is stopped. While admitting that we have in the X-ray a most valuable means of combating cancer, I believe that the interest of both science and our patients will be best subserved by strictly limiting the method to inoperable cases and to cases after operation."

Evidently Dr. Coley chooses the operation first and the X-ray treatment following. While admitting the beneficent use of the ray, his experience is limited to a small number of cases and extends over a period of a little more than a year.

Dr. William J. Morton of New York, who is an expert and specialist in electrical treatment, believes in the value of the ray in the absorption of breast tumors, but if after long trial the absorption does not take place, the use of the knife.

Dr. Arthur D. Bevan of Chicago, in a paper read before the Congress of American Physicians and Surgeons at Washington, D. C., on the thirteenth day of May, said that in operable cases extirpation should be first practiced, followed by post-operative X-ray treatment.

Dr. W. L. Rodman of Philadelphia, in the same Congress, believed that the X-ray was a valuable adjunct in the treatment of carcinomas.

Without further quoting many writers differing in various degrees between the extremes already quoted, allow me to give my own experience with the X-ray.

1. Mrs. M. C., a widow sixty-three years of age, whose sister died of recurrent cancer of the breast after two operations, was operated upon in 1887. Two years and nine months later she was operated upon a second time for a recurrence in the site of the old scar; six months after that she was operated upon a second time. In October, 1901, she began to have swelling of the arm and nodules appeared in the axilla and in the cervical glands. On March fifteenth, 1902, began treatment by applications of the X-ray. Seventeen applications were made until May sixteenth, 1902, without manifest change except some softening of the glands. Treatment was discontinued on account of increased feebleness and inability to come to the office. No marked improvement in her condition.

2. Mrs. M. K. C., a widow, aged fifty-nine, first noticed a small nodule in the left breast of the size of an English walnut, in July, 1896. In January, 1897, she went to North Adams, Massachusetts, and had the mass removed by some caustic application. This was over nine months in healing. On April twenty-second, 1902, she came under my care for treatment for a small nodule in the site of the scar tissue, evidently carcinomatous. The supra-clavicular glands were also moderately swollen. Treatment commenced upon April twenty-second, 1902, and was continued until May eighteenth, 1903. Early in the treatment the nodule in the site of the scar disappeared and the scar assumed a normal appearance. The swollen supra-clavicular glands also disappeared and she was apparently cured, the treatment being discontinued in March, 1903.

On May eighteenth, 1903, she returned, and I then found an increase in the size of the supra-clavicular glands, some pain in the chest, slight cough, and evidence of a commencing degenerative process in the peri-bronchial glands. She continues to receive the treatments,

but the probabilities are against an ultimate cure, having already become too deep-seated.

3. Mrs. F. S., married, aged thirty-eight, one child 16 years old. Father died of a growth in the rectum. In February, 1902, began to have slight twinges of pain in the left breast, lower segment. Small hardened area, size of a walnut. Refused operation and commenced treatment by the X-ray on April nineteenth. Has received from April nineteenth, to May fourth, 1903, thirty-one treatments. Pain subsided shortly after the treatments began, mass has not increased in size, has become softer, and appears as if absorption would take place.

4. Miss F. R., single, aged thirty-five, first consulted me for cystic tumor of the left breast in February, 1902. Operation February twenty-sixth, 1902, removing the breast containing a cyst with dense walls. June twenty-seventh, 1902, consulted me for a hard nodule in the right breast. As she refused operation began the use of the X-rays. Received from June twenty-eighth to December twenty-second, 1902, twenty-four treatments. Nodule seemed to disappear and breast assumed a more normal condition.

May sixteenth, 1903, consulted me for some recurrence of pain and some sensation of density in the same location, and is now taking same treatment.

5. Mrs. G., widow, aged sixty-five, was operated upon for carcinoma of the right breast at the Bridgeport Hospital, in March, 1900. In August, 1900, from scar of the wound some small nodules were removed. Secondary growths recurred in the site of the scar in many places, quite large and ulcerating. She came to me for treatment by the X-ray as an inoperable case, on July fifth, 1902. She received seven treatments which caused the nodules to disappear, but had some eczematous conditions, the result of the application of the ray. On account of becoming insane and being sent to the asylum, further treatments were discontinued. The insanity

was of a recurrent type, as she had been an inmate of the Asylum previously.

6. Mrs. M. L., aged fifty, married, menopause in 1900. In January, 1902, she began to have some pain in the left breast extending towards the shoulder. No tumor apparent, breast large and pendulous. September second, 1902, pain still continued in the breast, although no tumors were perceptible nor glandular enlargements. On account of the peculiar, suspicious character of the pains, began treatment by the X-ray on September twenty-ninth, 1902. Twelve treatments caused disappearance of the pain and relief from the annoying symptoms.

7. Mrs. A. S., married, age sixty-three, noticed tumor of the left breast during the summer of 1902. Husband is under treatment for epithelioma of the parotid glands, daughter-in-law died with cancer of the uterus. Refused operation and began treatment with X-rays on October seventh, 1902, and had received until May twentieth, 1903, fifty treatments, with the result of diminishing the size of the tumor, relieving the pain, but not the entire disappearance of the mass, and remains about the same condition as when first commenced.

8. Miss R. G., single, age thirty-eight, mother died with cancer. First noticed a mass in the upper and inner part of the left breast, following a blow, quite hard, size of a pigeon's egg. Began treatment on November twenty-third, 1902, by the ray. Until May nineteenth, 1903, has received forty-eight treatments, with the result of diminishing the size of the mass, but not causing its complete disappearance, and the relief of the pain. Still continues the treatment.

9. Mrs. M. A. M., widow, age seventy-eight, noticed a tumor of the right breast size of orange in October, 1902. On account of her age and feeble condition of the heart, it was not considered advisable to operate and she was advised to try the X-ray. Treatment began on Jan-

uary twenty-seventh, 1903, and she received twenty-eight treatments until April twenty-eight, 1903, with the result of diminishing very markedly, and causing almost a complete disappearance of the tumor at the last treatment, when, on account of removal from town, it was discontinued.

10. Mrs. E. U., age forty-three, single; one sister died from tuberculosis of the lungs, one sister has tuberculosis of the rectum. Came under observation January third, 1903. Three months previous began to feel some disturbance in the right breast. Examination shows hard nodule in the breast, slight glandular enlargement in the cervical region. Refused operation; has received from January third, 1903, to May twenty-third, 1903, thirty-seven treatments, with result of slightly diminishing the mass. Treatment still continues.

11. Mrs. W. A. L., forty, married, first came under observation July twenty-ninth, 1902. Three months prior began to have pain and swelling in both the right and the left breast, was operated upon by aspiration, withdrawing some fluid. The breast was amputated on August seventh, 1902. For some reason the surgeons did not remove the right breast at that time. On March sixth, 1903, consulted me for the tumor in the right breast, but refused an operation and commenced treatment by the ray. Has received to May fifteenth, twenty-four treatments. Pain and tumor subsided, but still under treatment.

12. Mrs. G. B., married, no children, aged thirty-four, noticed for the first time on March first, 1903, a tumor in the right breast just above the nipple, about the size of a walnut, very dense. Refused operation and commenced treatment by the ray, and has received thirty-four treatments to date, with the result of decreasing the size of the mass, but is still under treatment.

13. Mrs. F. A. B., age fifty-two, married, six children,

first consulted me on October twenty-fifth, 1902, for a tumor in the upper portion of the left breast. On account of a heart-lesion and some feebleness, operation at that time was not considered advisable, and, as she was under the care of a physician who had a static machine, treatment by the X-ray was commenced about that period and continued until about March first, having received eighty treatments. On May seventh, 1903, she consulted me, having a tumor about the same size as when I first examined her on October twenty-fifth, 1902. She had also enlargement of the glands of the armpit, and an X-ray burn of the breast, which had healed except an area of about an inch and a half in diameter. Advised an amputation of the breast which was performed at the Bridgeport Hospital May ninth, 1903. Breast and the glands of the axilla were removed. See Dr. Bartlett's letter.

The limited number and the brief time under which a portion of them have been treated precludes any statement of value in the treatment by the Roentgen ray, but merely indicates in a general way that this treatment possesses certain inhibitory and even curative properties, and is corroborative of the statements of others. Herein lies the value of the X-ray treatment to date. It opens a door of hope and an encouragement to every woman afflicted with a tumor of the breast, and the earlier the better, to seek the advice of a physician as soon as any evidence exists of an induration of the breast, with the trust that they may escape rather than undergo the surgical operation by knife or canter. This is the only excuse for this paper I can give you, that a reasonable chance exists to escape the knife. I am aware of a possible consequence to this advice which may be advanced as an argument against it, namely ; first, that by the delay in operating you thereby increase the chances for the extension of the disease, an answer to which lies in the

fact that if the ray inhibits the growth it also delays or prevents its extension. Second, that solution or melting away of a mass favors, by the absorption of the products of this solution, metastatic deposits elsewhere. In one case at least, of an immense and inoperable sarcoma of the neck, after the application of the ray, a metastatic recurrence was manifest in the splenic region, which terminated fatally. Was it the result of the solution, or the natural sequence of a growth of this character? I am unable to determine now the dangers from this source, but until some more direct evidence clearly points to a dangerous degree of absorption, I will continue the early use of the ray in breast tumors.

This leads me now to my second proposition which, so far as I know has never been tried, but offers a reasonable hope to escape from the latter danger, that is, the absorption already alluded to. This proposition is an early operation which aims at the removal of the tumor only without the sacrifice of the whole gland or the axillary glands, followed by the use of the X-ray to destroy any smaller nodules and to prevent the recurrence of the growth. This appears to me now in our present light, the most reasonable course to pursue in our treatment of breast tumors, and the one I hope to continue until further light may prove its truth or falsity.

And here I conclude, with an earnest desire that you will not rest in seeking after the truth which may confer upon our weaker co-partners in life an inestimable boon, or close again to them a door of hope.

Dear Dr. Wright:

Mr. Bean handed me a specimen a few days ago which he said came from you and stated that it had been a case treated with the X-rays and you wished to know if it was any different under the microscope than any ordinary cancer of the breast.

I am glad to have a chance to see such a specimen and

am sorry that I have been too busy to give it any more than a short examination. My impression is that there is more evidence of degenerative change, or of necrotic and degenerative combined, in the cell groups, than we ordinarily see in a cancer of the breast with as much connective tissue and as small cell groups as there are here. This is not so marked on the portions nearest the skin surface, where I find considerable mitosis, as it is deeper down in the tumor. I do not find any particular evidence of inflammation in the growth. I shall examine the sections more carefully as I find time and will write you if I find anything different from that indicated above.

Very truly yours,

G. B. BARTLETT.

DISCUSSION.

Dr. Carmalt:

It is with regret that I find myself in the position to be obliged to disagree with a gentleman for whom I have the respect that I have for the author of the paper just read, and it is further with infinite sorrow that I am compelled to take from the sufferer of an otherwise incurable malady that ray of hope which some unduly vaunted new remedy promises to bring in the escape from the mutilation of the knife. Regarding (as I am in the habit of saying to my classes) every surgical operation as a confession of failure, a confession that we cannot cure a disease, but must remove it lest greater dangers or suffering follow, I more than welcome anything that brings a promise of relief without such sacrifice; but the Roentgen ray with its unknown X quantity, is not a ray of hope to those afflicted with cancer.

Dr. Wright's paper itself bears the evidence to that end and it is the same with all the others. I do not recall every case the doctor cited and it may be that some one was more favorable than I recollect, but as I remember in every one sooner or later there was recurrence—

the benefits were temporary if at all. Dr. Wright quoted Dr. Coley, Dr. Bevan and others speaking at the meeting of the American Surgical Association lately held in Washington, D. C., as giving a guarded endorsement of the treatment as a post-operative procedure, but did not quote Dr. Alex. B. Johnson of New York, who also read a paper there on the same subject, but who was distinctly emphatic in condemnation as delaying the operation which must inevitably be performed, until the chances of successful removal are reduced to a minimum. Only last week I was obliged to operate upon a case of cancer of the lips in the practice of my friend, your late President, Dr. Granniss, that had been under the X-Ray treatment several weeks, though Dr. Granniss had persistently advised against it, and during which time it had steadily increased from a nodule the size of the tip of my little finger to involve nearly the whole of the lower lip infiltrating the tissue over the chin as well. The operation required the removal of nearly the whole lip, the mutilation was considerable, ten times as much as would have sufficed if the removal had been made when the doctor first advised it, and this is just the class of cases that according to Dr. F. N. Williams of Boston, are most favorable for the treatment, and other advocates. No, Mr. President, I make my most emphatic protest against this "monkeying" with so serious a malady as an operable carcinoma. Enough cases have been tried to show the inefficiency and consequent danger of the treatment; they either steadily progress as in the case just cited endangering the prospect of relief by operation, become inoperable, or they recur after a temporary improvement and require removal under less advantageous conditions.

I cannot do otherwise than regard such papers as this as harmful, from while at the close a more guarded tone was employed, the beginning of the paper was of

a hopeful character not justified by the very cases where histories were quoted. I sincerely hope no member of this society will ever either recommend or consent to a patient of his employing the X-Rays to an operable cancer. If it be inoperable let them have all the hope they can obtain from the X-Ray or Christian Science or condurango root or what else there may be.

CONTUSIONS OF THE INTESTINE WITHOUT LESION OF THE ABDOMINAL WALL AND WITH LATE APPEARANCE OF SERI- OUS SYMPTOMS.

EVERETT JAMES MCKNIGHT, M.D.,

HARTFORD.

After a somewhat careful examination of the medical literature of the past fifty years, the writer is unable to find any extensive recognition of the conditions which exist in the class of cases to be considered in this paper. It has for a long time been known that serious lesions may occur in the abdominal cavity as the result of apparently trivial injury without external marks of violence and with slight or even no immediate symptoms, but the pathology of such cases has evidently not been thoroughly understood, nor their treatment accurately outlined.

This does not refer to those cases where rupture of a viscus, extensive hemorrhage, or other gross lesion occurs immediately, but to those where simple ecchymoses are produced at the time of injury, which in any other part of the body would be of little moment.

In the Gny's Hospital Reports for 1858, page 123, Dr. Alfred Poland says: "A strike, kick or fall on the abdomen, a passage of a wheel over it, or a jam between two opposing bodies, etc., must never be judged lightly of, and must always be regarded with suspicion and treated in a careful and judicious manner. Many a trivial blow in this region has resulted in unexpected and sudden death, although sometimes life has been prolonged for a short period in agony and suffering, terminating in protracted collapse or else in subsequent fatal inflammatory mischief. This can readily be accounted for when we consider the numerous and vital

structures contained in the abdomen. All these structures, organs, etc., are moreover enclosed within soft, elastic parietes, capable of great distention, which, although readily able to resist shock and external violence without injury to themselves, yet may allow the force to be transmitted and expended on the contents with dire effect, and yet without leaving a trace or mark on the exterior."

At the fourteenth annual meeting of the International Association of Railway Surgeons at Milwaukee, in June, 1901, the late Dr. W. D. Middleton of Davenport, Iowa, reported three cases of slight injury to the abdomen, in which, although there was some evidence of shock immediately after the injury, it soon passed off and there was an entire absence of unfavorable symptoms until a few days later, when they came on suddenly and death rapidly ensued. In closing the discussion which followed, Dr. Middleton said, (Railway Surgeons, Aug., 1901, page 70): "As an ecchymosis is produced in the eye, so is it produced in the intestinal wall in a case of abdominal contusion. The blood stagnates and settles there. The wall becomes softened in its texture presently, as in the second case narrated, infection takes place through the wall by contiguity, and we have the abdomen filled with pus or a perforation may take place through the softened spot."

The writer's personal experience has been limited to two cases.

Case 1.—J. T., fifty-nine years old, a farmer, previous health good.

On September 30th, 1902, at about 9 a. m., while trying to prevent a pair of horses from running away, he was thrown to the ground, rolled over, but not stepped upon. The team was stopped with the front wheel of the cart resting against the right side of his chest. Dr. E. T. Davis of Ellington, who was called immediately, found

fracture of two ribs on the right side, but no indication of other injury, and reports that there was no condition of shock noticeable. After having his chest strapped Mr. T. went about his business and at noon ate a hearty dinner.

There were absolutely no abdominal symptoms until about thirty hours after the injury when he began to have some distention and discomfort, remarking to his wife that that was where he was going to have trouble. From that time on he grew steadily worse with incessant vomiting, distention, fever and rapid pulse, all these symptoms increasing in severity up to the time of my first visit, sixty hours after the injury. A diagnosis of serious injury to the intestines was made and an exploration advised and allowed.

On opening the abdomen the whole intestinal canal was found greatly distended with fluid and gas, and presenting a large number of small ecchymoses, those on the intestinal wall being black, but on the mesentery bright red. Two feet of the small intestine presented a dusky appearance but no other lesion was found. Into this a small incision was made, through which a large amount of gas and fluid was evacuated, the bowel immediately regaining its normal color. The portion of gut incised was fastened loosely to the abdominal wall and packed around with gauze.

The patient rallied well, the pulse and temperature reaching the normal point within two days. Feeding was entirely by rectum for several days. Later he was fed by the mouth for a while, but the opening was so high up in the intestine that he obtained no benefit from the food so taken, as only a very small amount was absorbed. The digestive fluids also acted so powerfully upon the skin of the abdomen that it became necessary to again resort to rectal alimentation. On account of the combined action of the circular and longitudinal fibres the opening in the gut became greatly enlarged

and the mucous membrane protruded much as in a case of prolapse of the rectum.

On October twenty-fifth, twenty-three days after the primary operation, the wound was closed with Lembert sutures, leaving a comparatively good sized lumen, but they soon tore out and the parts lapsed into their former condition. He was finally persuaded to consent to a radical operation, and on November tenth, at the Hartford Hospital, the wound was opened up for the purpose of making a resection of the bowel. To my surprise it was found that firm adhesions had taken place at every point where there had been an injury to the intestine, which it was impossible to separate, without tearing out a part of the structures of one or the other wall. The gut was finally freed and about four inches at the site of the original incision removed, and an end to end anastomosis performed. He stood the operation well and was in excellent condition until twenty-four hours afterwards when he suddenly went into a state of collapse, the pulse going immediately to 160. This seemed to be co-existent with commencing action in the previously unused portion of the intestine, which evidently caused a condition similar to that of shock, and also brought into contact with absorbing surfaces a large amount of decomposing mucus and exfoliated epithelium, which had been accumulating in the intestinal canal. Copious evacuations, very offensive in character, occurred frequently, and later a large amount of fresh bile. It had been supposed that the irrigations into the upper end of the lower segment had passed down through its entire length, but it was shown at the time of operation that this was impossible on account of the numerous twists and adhesions.

Death occurred on November fifteenth, five days after operation, and was due to shock and auto-intoxication through the intestinal mucosa. Examination showed that there was absolutely no leaking at the point of

suture, no peritonitis, and no lesion of whatever nature in the abdominal cavity.

Case 2.—Mrs. A., sixty-eight, married, on January ninth, 1903, while walking on a slippery sidewalk, fell, striking upon the left side of her abdomen. She fell easily, a bystander remarking that she did it very gracefully. There were no symptoms of any injury whatever until the fourteenth, five days later, when she commenced to have an uncomfortable feeling in the abdomen which was slightly distended. Repeated attempts at catharsis were unavailing and, as the discomfort was increasing, her physician was called on the morning of the seventeenth, eight days after receipt of the injury. There was then no elevation of temperature, some distention, with a good deal of discomfort. Vomiting commenced in the afternoon of that day and was constant and temperature reached about 100. Was first seen by me at the request of the attending physician, Dr. J. H. Naylor, on the morning of the eighteenth, nine days after the injury. There was then some elevation of temperature and pulse, distention of the abdomen, vomiting, obstinate constipation, all of which indicated an obstruction or paralysis of the bowels. Upon opening the abdomen, there were found upon both the small and large intestine numerous ecchymoses. Several feet of the lower end of the ileum were collapsed and empty, while the upper portion was markedly distended. Upon lifting the collapsed bowel out of its bed, it immediately became distended and gas was easily forced through the ileo-cecal valve, distending the colon. The intestine so distended did not again collapse, showing that it was in the same condition as the rest of the canal, but contained within its walls nothing to cause the presence of gas, the pressure in the remaining portion preventing gas from passing into it. It is also possible that a previous contraction of the circular fibers may have left the bowel in this collapsed condition. There were some very slight

recent adhesions, but no evidence of mechanical obstruction. Tubes were fastened into two of the most prominent loops of intestine to relieve distention, the paralysis having gone so far that the first opening relieved the distention for only a few inches in its immediate vicinity, and the abdominal cavity drained in several places. While her condition was slightly improved for a while, she died on the evening of the twenty-third, five days after operation. At the autopsy, there was found some accumulation of fecal matter in the vicinity of the sigmoid flexure, which presented a number of large ecchymoses. Wherever an ecchymosis existed in the small intestine, the bowel for an inch or two on either side was collapsed. Gas could easily be forced through, but the parts would immediately return to their former condition. This was probably due to cell infiltration and thickening of the wall, which prevented it from distending to the same extent as the rest of the bowel.

It is hardly necessary in this paper to devote much time to etiology, or to try to explain the diversity of lesions which may occur in different individuals from apparently similar injuries. One can find much of interest upon this point in medical literature, but attention is especially directed to the Cartwright Prize Essay of the Alumni Association of the College of Physicians and Surgeons of New York, by Dr. B. F. Curtis, which was deposited in the Library of the New York Academy of Medicine, and a part of which was published in the *American Journal of the Medical Sciences* for October, 1887.

We know, however, that flat surfaces of large area more often produce ecchymoses without other injury, while small and especially rounded objects, as the fists or the feet of man or of animals are more liable to result in rupture of some one of the viscera.

As a result of the injuries there are produced multiple ecchymoses in the intestinal wall and mesentery, the

latter of which are of little importance except in so far as they may be concerned in adding to the impairment of nerve supply, which is an important factor in producing serious results. Very different, however, are the lesions in the intestinal wall. There being no underlying blood-supply there results a stasis at these points more or less absolute, and the vitality of the structures is very much lowered. Pressure from over distention also adds much to the interference with nutrition. This condition of lowered vitality, together with a cessation of peristalsis, favors the passage of micro-organisms and the development of peritonitis and also predisposes to perforation.

The condition of the intestine as regards the presence within its walls of fermentable material is to be considered. With the stomach and upper bowel empty, peristalsis is absent, dangerous distention does not occur as a result of decomposition, and digestive ferments are not carried down to the point of injury. This is of great importance, as perforation is often the result of the action of these ferments in digesting those portions of intestinal wall which have taken on a lowered vitality. With the presence of food in the intestine, however, all conditions exist which favor peristalsis, fermentation, distention, and perforation; and this is the most important factor in determining the treatment. The perversion of nerve action resulting from these injuries offers a wide field for investigation. When one considers the complexity of the intestinal nerve supply, it is not to be wondered at that even slight injuries should greatly interfere with their normal function and give rise to conditions, which of themselves, may bring about a fatal result. Just how paralysis of the intestine, so called, is produced by these injuries, it is not within the scope of this paper to determine. The subject, however, is one of great importance and worthy of further investigation.

The treatment should be expectant and operative.

When a person has had a fall upon the ground or an injury to the abdomen, not accompanied at the time by serious symptoms, the existence of a contusion of the intestine should always be considered. In the two cases reported there was absolutely no suspicion of internal injury at the time of the accident. As has been indicated, the presence of food in the canal produces all the conditions which favor development of infection of the peritoneum and perforation of the intestine. In a suspected case, therefore, the stomach should be washed out and alimentation carried on by rectum alone. Absolutely no attempts at catharsis should be made, in this, or in any condition where we suspect an injury to the intestine or where there are present symptoms of obstruction or paralysis. The only condition in which this could possibly do good would be in fecal impaction and that could easily be relieved by other means. In all other conditions catharsis could do no good; but, on the contrary, might do an immense amount of damage. I believe, if the plan above outlined is followed out, that an operation will often be averted. It is not necessary here to go into any detailed consideration of the symptoms calling for operative interference. Suffice it to say, that one should not wait for continued vomiting, marked distention and rigidity of the abdominal muscles, but endeavor to interfere as soon as the case ceases to improve and upon the first appearance of symptoms which indicate the presence of peritonitis or threatened perforation.

Just what to do after opening the abdomen, must be left to the judgment of the operator. In a general way, I would say that the presence of ecchymoses in the intestinal wall with a distended gut calls for immediate relief of the distention by incising the bowel and fastening a tube into the opening with two purse-strings, inverting the peritoneum. Had this been done in my first case, there would not have occurred the wide opening of the

incision and it is possible that, by temporarily closing the tube, there might have been pressure enough exerted within the gut to keep its lumen open. Wherever an incision is made into an intestine which is to be only temporary, this practice should always be adopted. After perforation has occurred, the case should be treated as in perforation from other causes, except that when ecchymoses are also present it may be advisable to leave a temporary opening in the gut to relieve distention and prevent further perforation.

In a case reported by Dr. George Emerson Brewer, in his able article on "Abdominal Contusions," read before the New York Surgical Society, October 22, 1902, and printed in the Archives of Surgery for February, 1903, page 208, Case 6, of his series, he says:

"The intestines in the lower half of the abdomen and pelvis were injected and covered with a fibrinous exudate. A large perforation was found in the lower third, through which gas and fecal matter were constantly escaping. Several other severely bruised and ecchymotic areas were found on various coils of the small intestine. The rupture was united with two rows of Lembert sutures, the peritoneal cavity thoroughly irrigated, and the wound closed with two cigarette drains,—one leading to the pelvis and one to the right flank. The patient was infused and generously stimulated. He did exceedingly well for more than a week. The temperature and pulse fell to the normal; the distention and rigidity disappeared; the bowels moved, and the patient took plenty of fluid food. About the tenth day he began to complain of pain and to develop signs of a rapidly spreading peritonitis, and died two or three days later. On autopsy, the original perforation was found to be healed, but a second perforation had occurred at the site of one of the many contused areas seen at the time of the operation.

This patient would undoubtedly have recovered had it not been for the secondary perforation."

To sum up, slight injuries to the abdomen without primary symptoms, especially when produced by flat surfaces of large area, may so injure the intestinal wall that death may later result from secondary pathological changes. When a suspicion exists that such a condition may have been set up, absolutely no food should be given by the stomach for several days. Cathartics should never be used in a suspected case, nor in obstruction or paralysis of the bowel from any cause.

Operative interference should be resorted to early when the symptoms indicate that the condition is not improving under the treatment outlined and should be aimed at the relief of distention of the gut until such time as the injured parts shall have regained their vitality and at the drainage of infected peritoneal areas. No intestinal rupture should be closed when there exist in the immediate vicinity areas of tissue of such lowered vitality that secondary perforation is liable to occur.

THE INDICATIONS FOR OPERATION ON THE THYROID GLAND IN GRAVES' DISEASE.

LEONARD WOOLSEY BACON, JR., M. D.

NEW HAVEN.

We are greatly handicapped in the treatment of many diseases by an imperfect knowledge of their pathology, and of no disease is this more obviously true than of exophthalmic goitre, where not only the pathogenesis of the morbid process is obscure, but our knowledge of the normal physiology of the organ most conspicuously involved is likewise very incomplete. Yet these are the two factors upon which we must rely for formulating all rational indications for treatment.

Of the manifold theories propounded to explain the pathogenesis of Graves' disease, two have survived and are recognized to-day by a nearly equal following; but it is astounding, to one who makes even a cursory review of the extremely copious literature of the subject, to note how far specious special pleading, in favor of the one theory or of the other which the author may have adopted, takes the place of a judicial and impartial consideration of the available data.

The older of these two theories, supported by the French observers Trousseau and Jaccoud, ascribed the disease to a lesion of the sympathetic system, finding its chief seat in the three cervical ganglia and in the nuclei of the floor of the fourth ventricle, and its manifestations in the vascular territories controlled by these nerve structures, whence the increased blood-supply, the consequent exaggeration of function and the hypertrophy of the thyroid gland, the tachycardia, the flushing of the skin and the dilatation of the orbital vessels causing the exophthalmos.

The objectors to this theory point out, (1), that one of the most constant symptoms known to follow increased action of the cervical sympathetics is mydriasis, and that dilatation of the pupil is conspicuously absent in exophthalmic goitre. They further assert, (2), that to account both for the tachycardia and for the vascular dilatation we must assume an entirely paradoxical condition of the sympathetic nerves, whereby they should be at once stimulated (to account for the tachycardia) and at the same time depressed (to account for the vascular dilatation); the only escape from the dilemma being the entirely gratuitous and unwarranted assumption of the coëxistence in the nerves of vaso-dilator and of vaso-constrictor fibres. Again, (3). anatomical lesions are not constantly demonstrable in the nerves, ganglia or nuclei named, in contrast to the almost universally demonstrable histological, if not gross anatomical changes to be found in the thyroid gland; while the cases in which lesions of the nerve tissues in question have been demonstrated, have been almost exclusively those where other concomitant and associated nervous diseases, independent of Graves' disease, such as tabes, syringomyelia and pachymeningitis, have been present. It is furthermore asserted, (4), that this theory gives no adequate explanation of the tremors and of the emaciation, two very constant phenomena in Graves' disease, nor, (5), for the following significant sequence which has been repeatedly observed, viz., an acute infectious strumitis, followed promptly by exophthalmic goitre, this, in its turn, after a more or less protracted course, by myxedema, and this myxedema finally relieved by the administration of thyroid extract.

The second theory invoked to account for the phenomena of Graves' disease is that of thyroid intoxication, either through hypersecretion or through perverted secretion by the thyroid gland. This theory was first advocated by Moöbius, and its adherents adduce in

evidence the sequence above mentioned (acute strumitis followed by exophthalmic goitre, this in turn by myxedema, and the myxedema finally relieved by the administration of thyroid extract); the known effects of the administration of thyroid extract to animals and to human beings; the marked antithesis between Graves' disease on the one hand, and the diseases known to be due to deficient thyroid secretion, cachexia strumiprivarum, spontaneous myxedema and cretinism, on the other hand; and, finally, the constancy of demonstrable anatomical changes, gross or minute, in the thyroid gland in all cases of genuine Graves' disease which have come to operation or to autopsy, where the gland has been properly examined.

Both sides adduce the efficacy of the surgical removal of what they esteem to be the offending organ, i. e., ablation of the cervical sympathetic nerves and ganglia, and partial or total thyroidectomy.

The following objections have been raised to the theory of thyroid intoxication:—(1), The production of exophthalmos, while a tolerably constant phenomenon in Graves' disease, has not been shown to be brought about by even the prolonged administration of thyroid extract in therapeutic doses, nor yet by its experimental administration in enormous doses; (2), this theory does not adequately explain the occasional appearance of unilateral symptoms, unilateral exophthalmos, unilateral Grafe's sign (i. e., failure of the upper lid to be raised and lowered concomitantly with the eye-ball), unilateral hyperidrosis, unilateral goitre; this theory, it is asserted, (3), does not adequately account for the sequence that has been observed in the gradually advancing involvement of the ocular muscles, indicating a consecutive paresis of the oculomotor, the pathetic and the facial nerves, a sequence most suggestive of a gradually extending focus of cerebral disorganization; nor, (4), for the fact that symptoms of Graves' disease frequently assert them-

selves toward the end of certain organic spinal or cerebral diseases, such as tabes, cervical syringomyelia and cervical pachymeningitis where exophthalmos, tachycardia, etc., have developed consecutively as the degenerative changes in the central nervous system have advanced to involve the structures of the bulb and the floor of the fourth ventricle; it is furthermore asserted, (5), that the cases of Graves' disease, appearing as a quasi-reflex in the course of other diseases, such as uterine fibroids, nasal polypi, floating kidney, etc., and vanishing when the original difficulty inducing the alleged reflex has been corrected,—are better accounted for on the theory of an essentially nervous than on that of an essentially thyroid origin of Graves' disease, and that the same is true of such cases as appear abnormal through unusual predominance of some one or more of the symptoms recognized as belonging to the syndrome to which we give the name of Graves' disease.

In most controversies of this nature, carried on by careful and competent observers on both sides it has generally proved in the end that both parties were in a measure right, and both in a measure wrong. For the clinician, at all events, this would seem to be, in the present case, a safe assumption, and it will perhaps be not unwise to try if we cannot determine two types of the disease, the one type more strictly explicable as a pure intoxication from the excessive or the perverted activity of the thyroid gland, the other type, while involving super-activity of the thyroid gland as an incident to the dilatation of its afferent blood-vessels, yet presenting some symptoms, or some absence of symptoms, whereby it may be differentiated from a pure thyroid intoxication. Should it be possible to determine such types of the disease, and should surgical intervention be decided on, it would be reasonable to look for the best results in the one case from thyroidectomy, and in the other from ablation of the sympathetic ganglia.

Nor would it be correct, to infer from possible good results obtained by a series of thyroidectomies or from a similar series of so-called "sympathectomies" that the cases benefited by the first set of operations were all of the "thyroid type" while those benefited by the second set of operations were of the "sympathetic type," nor, indeed, to deduce from any number of successful operations of the kind an answer to the question in dispute between the two pathological schools, for in perhaps a majority of cases of the disease either operation would be likely to arrest the symptoms, if not to effect a cure, as has indeed been found to occur after many operations upon other offending structures in the body in cases of Graves' disease, notably so after the removal of uterine fibroids and of chronic nasal obstructions, while, in at least one case the enucleation of both exophthalmic eyes brought about an apparent cure of the disease. On the contrary, the clinical and pathological lesson to be learned from two such series of operations would be learned, if at all, from a careful analysis of the cases in which the respective operations had failed to afford relief.

It is the business of this paper to seek out and define, if possible, that class of cases which affords a reasonable indication for operation on the thyroid gland for the relief of exophthalmic goitre, and it is necessary to define these indications pretty exactly, as the operation is attended with a not inconsiderable mortality, estimated to be in the neighborhood of seven per cent.

This one fact of a not inconsiderable mortality should at once exclude from our consideration mild and untreated recent cases until an effort at least shall have been made, by suitable dietetic and hygienic care and by suitable medication directed to the maintenance of intestinal asepsis, and to the circulatory and nervous systems, and perhaps by the administration of specific animal extracts, to overcome the symptoms of the disease, and until the failure of reasonable efforts along these lines shall have

demonstrated that we have to do with the disease in its more serious forms; it should exclude, likewise, those cases where the Graves' disease exists apparently as a reflex from uterine, nasal or other extrinsic disease, at least until efforts shall have been made to abolish the reflex symptoms by correcting the original malady. Only after the mild and tractable cases and those of a reflex nature have been thus eliminated does surgery of the thyroid body come to the front as a rival to other forms of therapy in the effort to relieve the patient "*tuto, cito et jucunde*."

The questions then which we are to study are, What phenomena point to the thyroid type of the disease? and, What phenomena point to another type which, for the sake of argument, we may denominate the "sympathetic" type of the disease? Our first question for study should in turn be divided into two branches, What phenomena indicate simple excessive thyroid secretion? and, What phenomena indicate perverted thyroid action?

Greenfield has pointed out a most instructive analogy in comparing the condition of the thyroid gland in health and its conditions in Graves' disease with the condition of the mammary gland during quiescence and during lactation respectively, and this enlightening analogy should guide us in seeking the criteria by which we may judge whether, in a given case of Graves' disease, we are dealing with the type induced by excess of secretion, or with some of the other types of exophthalmic goitre.

There are four criteria by which we may hope to determine the pure thyroid type of the disease, the type that is, "by mere excess of thyroid secretion":—

First, The closeness with which the symptoms presented resemble those known to follow the exhibition of thyroid extract to animals or to human beings.

Second, The exactness with which the symptoms of the case in question are antithetical to the symptoms of

spontaneous myxedema or to those of operative removal of the thyroid gland in human beings, or to its experimental removal in the lower animals (*cachexia strumiprivarum*).

Third, The effect upon the system of the cautious experimental administration of thyroid extract to the patient in hand.

Fourth, The local evidences in the thyroid region of excessive activity of the gland.

To enlarge briefly upon these four points, we may say, with regard to the first, that many of the more typical cases of Graves' disease present very closely the identical symptoms which follow the therapeutic or the experimental exhibition of thyroid extract; these are, in brief, (1), general irritability and excitement; (2), a weak, rapid pulse, with shortness of breath; (3), vomiting and diarrhea; (4), headache and vertigo; (5), delirium, hallucinations, and coma; (6), neuralgia and weakness in the extremities, tremor, clonic convulsions and monoplegia; (7), a feeling of heat in the skin, with itching and other paraesthesiae indicative of cutaneous congestion; (8), sweating; (9), actual pyrexia; (10), emaciation; (11), other indications of increased metabolism, such as polyuria, with increased excretion of nitrogen, carbonic acid, sodium chloride and phosphoric acid, and, in some cases, glycosuria.

The symptoms of myxedema, *cachexia strumiprivarum* and cretinism which have been alluded to, under the second head, as antithetical to those of Graves' disease are as follows: The whole body tends to increase in bulk and become unwieldy, the swelling being partly produced by an enormous thickening of the skin, and partly by the presence of a soft fat; the skin, besides being swollen is excessively rough and dry, perspiration being scanty or absent; the skin is pale and cold; the hair loses its natural gloss, and becomes fragile, rough and scanty, almost to baldness; thought and movement

are slow and the patients are apathetic or melancholic; the temperature of the body is generally below normal and the patients are extremely sensitive to the cold; the urine is scanty and the excretion of urea is diminished even under the ordinary diet.

With regard to the third point, it will suffice to say that in many cases of Graves' disease, it has been found that even minute doses of thyroid extract distinctly aggravated all the symptoms of the disease, while larger ones could not be borne at all; other cases of Graves' disease, on the other hand, have been able to take considerable doses of the extract without apparent effect one way or the other, while still other cases have been distinctly benefited by the treatment. The explanation which I have to offer of this puzzling phenomenon is that the first class of cases were due essentially to sheer superactivity of the thyroid gland, that is, were cases of thyroid intoxication by excess of secretion, and therefore aggravated by an additional dose of the intoxicant already present in excess; the remaining cases, on the other hand, were due either to perverted thyroid secretion or, possibly to some primary nervous disorder of the sympathetic system or of the bulb.

The fourth point deals with the local evidences in the thyroid region of excessive activity of that gland, the chief of these are goitre with glandular pulsation and thrill, carotid pulsation with local venous engorgement, and local hyperidrosis, phenomena often well marked in Graves' disease. The great activity of the cervical vessels is often in marked contrast to the comparatively quiet action of the femorals and of the abdominal aorta, though in some cases of Graves' disease the pulsation of the abdominal aorta in the epigastrium is the occasion of great distress to the patient, and dilatation of the mesenteric vessels is invoked to account for the serous diarrhoea often met with in this disease.

We may logically assume that where these criteria are

applied to the analysis of the symptoms of a given case of Graves' disease and are found to indicate a super-activity of the gland, an operation directed to the gland itself and calculated to limit its activity, whether by partial ablation of its substance (thyroidectomy), by diminishing its blood-supply (ligation of the thyroid arteries), or by exposing its substance to desiccation and to the compression of cicatricial tissue (exothyropexy), will be a rational one and one well adapted to relieve the patient.

Having now considered what are the signs that indicate a pure thyroid intoxication, we should next inquire what are the criteria by which we may judge that a perverted thyroid secretion, and not merely (or chiefly) an excessive thyroid secretion are responsible for a given case of Graves' disease? What are they, indeed, but the criteria of perverted function in general, namely, great disproportion in the sequence or in the correlation of the symptoms? It is not irrational to ascribe to this category those cases in which there is an extreme cardiac ataxia, with but moderate manifestation of the customary syndromes of Graves' disease such as goitre, exophthalmos, tremor, sweating, etc.; and those cases in which extremely rapid and progressive emaciation far outdistances the cardiac and goitrous phenomena and most of the "*formes frustes*," particularly those cases in which the localized, non-pitting patches of edema above the clavicles, and upon the extremities, and the local pigmentation and roughening of the skin suggest a tendency either to a concurrent pseudo-myxedema or to the supervention of myxedema upon the imminent exhaustion of the thyroid gland.

The premises from which we were in the former class of cases led to expect benefit from operation upon the thyroid gland are now quite changed, and we should hesitate, and consider carefully before proceeding to surgical measures which may be fraught with disaster.

Not that surgical procedure may not be applicable in some of these cases, but that the indication is much less plain, the risk is probably much greater, and the chances of affording relief much less certain. It seems logical that here too the reaction of the patient to the tentative administration of thyroid extract might be a guide to us in recommending operation upon the gland, as it is probably, though I speak with diffidence on this point owing to my limited opportunities for observation, it is probably in cases of this type that the anomaly presents itself of improvement in Graves' disease following upon the administration of a presumably normal thyroid extract.

And what are the criteria by which we may judge that a given case of Graves' disease belongs to the third group, that class to which I have ventured to give the name of the "sympathetic" type.

To this class should be assigned those cases which are occasionally seen in which there is unilateral exophthalmos, or those "formes frustes" in which the peculiar localization or limitation of the symptoms would seem to be unaccountable on the hypothesis of a general intoxication, whether by excess or by perversion of the thyroid secretion, and those cases in which the symptoms of Graves' disease supervene in the course of progressive degenerative disease of the cerebro-spinal axis.

It would seem as if operation upon the thyroid gland offered less hope for these cases, and that it would be more rational, if surgical measures were to be employed at all, to direct them to the cervical sympathetic ganglia and nerves.

To round out our consideration of the indications for operation on the thyroid gland in Graves' disease it is necessary to consider some further cases. The remarks we have hitherto offered may be considered applicable to cases of primary exophthalmic goitre, and also to cases of secondary exophthalmic goitre, i. e., to cases of Graves'

disease secondary to other diseases such as influenza or typhoid fever, or to peripheral irritation from intranasal or uterine disease. Another form of Graves' disease has yet, however, to be considered, namely that known as goitre secondarily exophthalmic, in which the symptoms of Graves' disease eventually supervene in subjects who have long borne simple goitres not primarily giving rise to symptoms of thyroid intoxication.

It will suffice for me to say that in these cases I believe the indication for thyroidectomy to be stronger than in the primary or in the ordinary secondary cases of Graves' disease.

The further indications for operation on the thyroid gland in exophthalmic goitre are the general indications for surgical intervention in other parts of the body. They are those somewhat rare cases in which Graves' disease develops in connection with an acute strumitis, and in connection with thyroid abscess; those developing in connection with primary malignant disease of the thyroid, and, lastly, that much more numerous class of cases where the goitre itself gives rise to pressure symptoms, compressing the trachea and so occasioning mechanical asphyxiation manifesting itself in attacks of dyspnea especially during sleep or when lying down, or irritating the sympathetic nerve, thus giving rise to unilateral flushing, sweating and dilatation of the pupil, or interfering with the recurrent laryngeal nerve, causing cough, hoarseness or aphonia.

It is probable that a more exact determination of the real indications for operations on the thyroid gland will do much to afford us a more satisfactory figure in the mortality statistics. Should this be so there would be less hesitation on the part of surgeons to undertake operative measures for the relief of this most distressing condition and we should hear of fewer cases who have suffered and been more or less completely incapacitated for years.

To resume briefly the points of the discussion:—

I. There are two views as to the pathogenesis of the disease, each supported by careful and competent observers, each of which views leaves a certain margin of symptoms unaccounted for. The two doctrines are that of thyroid intoxication and that of primary affection of the sympathetic nerves and ganglia. The question of thyroid intoxication may be considered under two aspects, that of intoxication from mere hypersecretion, and that of intoxication from perverted secretion.

II. A great step toward the proper formulation of the indications for operation on the thyroid gland will have been made if we can establish criteria by which it may be possible to divide cases of Graves' disease according to their probable pathogenesis. Such a division is suggested into, (1), Cases of the "thyroid type" due to mere excess of secretion (the classical and typical cases of Graves' disease); (2), Cases of the "thyroid type" due to perversion of secretion; (3), Cases of the "sympathetic type" where the symptoms differ from those of a general intoxication.

III. There are four criteria by which we may judge that a given case of Graves' disease belongs to the type of 'thyroid intoxication by excess of secretion.' (1), The closeness with which the symptoms presented resemble those known to follow the exhibition of thyroid extract to animals or to human beings. (2), The exactness with which the symptoms presented are antithetical to the symptoms of myxedema or to those of cachexia strumiprivarum. (3), The effect upon the symptoms of the cautious experimental administration of thyroid extract. (4), The local evidence in the thyroid region of excessive activity of that gland.

IV The criterion by which we judge that a given case of Graves' disease belongs to the type of "thyroid intoxication by perversion of secretion" is great disproportion in the sequence or in the correlation of the

symptoms, as frequently manifested in what the French denominate the "*formes frustes*."

V. We judge that a given case of Graves' disease belongs to the "sympathetic type" when we find isolated symptoms, or localized symptoms such as unilateral exophthalmos which are not readily accounted for on the theory of a general intoxication and when the symptoms come on in the course of degenerative diseases of the brain and spinal cord.

VI. In cases of the type of "thyroid intoxication by excess of secretion" operation on the thyroid is indicated in all cases of more than a few months duration where the gravity of the symptoms warrants the exposure of the patient to an operation having a general mortality of about seven per cent, provided that the cases have not been decidedly benefited by reasonable non-surgical treatment, or by surgical means addressed to other diseased organs.

VII. In cases of the type of "thyroid intoxication by perversion of secretion" the indication for operation on the thyroid is much less decided, and in many cases, particularly in those cases where there are concomitant symptoms of myxedema, operation on the thyroid gland is counterindicated. In this class of cases the risk is greater and the chances of betterment by operation are less.

VIII. In the two preceding classes of cases it is reasonable to be guided as to operation by the effect on the patient of the tentative administration of thyroid extract. Though absolute reliance should not be laid on the test, yet, "*ceteris paribus*," those cases where the symptoms are aggravated by the thyroid extract will be the more likely to be helped by thyroid operation.

IX. The indications for the operation are less strong in cases of Graves' disease of the "sympathetic type," so-called "sympathectomy" being probably the prefer-

able operation if surgical measures are to be employed at all.

X. In cases of goitre secondarily exophthalmic the indication for thyroid operation is strong.

XI. The further indications for thyroid operation in Graves' disease are the general indications for surgical intervention in other parts of the body, to wit, acute strumitis, thyroid abscess, primary malignant disease of the thyroid gland, and pressure symptoms.

XII. With careful formulation and strict observance of the logical indications it is likely that the mortality and the failure of thyroid operations will be substantially reduced.

In conclusion we may assert the general proposition that the more typical and regular the case of Graves' disease the more likely it is to be benefited by operation on the thyroid gland, while conversely, the more widely the symptoms differ from those known to be due to simple hyperactivity of the thyroid, the more ready should we be to turn to other methods of combating the disease.

DISCUSSION.

Dr. Howe remarked that this was the most exhaustive paper on the subject he had ever heard or read. He was delighted with it.

Dr. McKnight said he had seen a patient operated on by Dr. Cullen at St. Luke's Hospital, who died upon the table. He used general anesthesia, never local. What operations had been done under cocain he did not know.

A member told about seeing many operations done by Prof. Kocher who used cocain entirely and condemns general anesthesia. A long needle is introduced under the skin and the injection made. The mortality is less than one and a half per cent. He saw fifty cases operated upon with no mortality. The recurrent laryngeal nerve was not cut but was used as a guide, the patient being

made to say ah! ah! every few minutes. In all cases he leaves some of the gland. The treatment is now entirely surgical, all medical remedies having been abandoned. The cases were not selected. They were all enlarged thyroid one in every seven being cases of goitre.

Dr. Bacon replying said the speaker confuses the operation for goitre for that of Graves' Disease. The operation for goitre ought not to be more fatal than any other. The operation upon the Thyroid for Graves' Disease is, however, a different thing. If we are to learn anything about this subject it must be from the reports of cases which have not been successful. If we are to learn the choice of proper procedure it must be by reports of failures and by analyzing the reports.

INFRAORBITAL NEURECTOMY.

ANSEL G. COOK, M.D.,

HARTFORD.

To relieve the excruciating pain caused by tic douloureux, has long been a problem to both physicians and surgeons. Medicines, whether taken internally, or applied externally, have proved, in chronic cases, of but little value.

Nerve stretching and simple section, though occasionally successful, have been generally followed by but slight temporary relief. Larger and larger sections of the nerve have been removed from time to time, until quite recently, Hartley has trephined the skull and removed the entire Gasserian Ganglion.

Recognizing the inefficiency of simple nerve section, and the great danger of the Hartley operation, Dr. Robert Abbe, surgeon to St. Luke's Hospital of New York, in an article in the "Annals of Surgery," January, 1903, describes a modification of the Hartley operation, which he has successfully performed.

Dr. Abbe trephines the skull, removes from one-fourth to one-half inch of the second and third branches of the fifth nerve, anterior to the ganglion, leaves the ganglion undisturbed, and plugs the foramen rotundum and the foramen ovale with gutta serena tissue, which is supposed to remain permanently, and to prevent the divided ends of the nerves from growing together.

This operation, as far as the second division of the fifth nerve is concerned, is practically a removal of the entire nerve in front of the ganglion. Dr. Abbe does not actually remove the nerve, but I admit, that the plugging of the foramen rotundum amounts to the same thing.

If the ganglion itself is diseased, this operation would not reach the seat of the trouble.

A much simpler, safer, and as far as I can see, equally efficient operation, is that originated by the late Dr. Melancthon Storrs of Hartford, Conn., who cut the nerve on the outside of the foramen rotundum, removed a section of an inch and a half, and brought the distal end of the nerve into the mouth, between the alveolus and the upper lip, leaving the divided ends of the nerve some three inches apart, and the lower portion turned in a direction away from the upper. It is inconceivable that these divided ends could ever re-unite.

Dr. Storrs was a surgeon of more than local reputation, whose skill and judgment were respected throughout the State of Connecticut.

His exact technique in performing this operation, is not well understood. His idea was always the same, but his method of operating differed in different cases. He perfected his methods and his special instruments, as he gained greater experience.

The operation which I am about to describe may be relied upon as the perfected Storrs operation.

I had the honor, on three occasions, of assisting Dr. Storrs at operations on living subjects, and spent considerable time with him in devising and remodeling instruments, and in experiments on the cadaver, and, finally, at his request, I did the operation on a cadaver, under his eye, that he might satisfy himself that I thoroughly understood it, and that the knowledge of his discovery would not die with him.

Dr. Storrs operated on some ten or twelve patients, none of whom died, directly or indirectly as the result of the operation. One woman lost the sight of an eye, but I have been told by her oculist that this was not owing to the operation and that the pain did not return.

Two patients whom I knew personally, had no return

of the pain, and lived eleven and fourteen years, respectively, after the operation.

I have heard that three or four of the patients had some recurrence of pain after two or three years, but to what extent it is impossible to say accurately. I have investigated the case of one patient who was said to have relapsed, and found that he had suffered severe pain in other nerves but not in the second division of the fifth nerve which Dr. Storrs removed.

A well-known case was that of the late Roland Mather of Hartford. Mr. Mather was seventy-six years old, had suffered severely for fourteen years, and had consulted many physicians at home and abroad. It is safe to say that he had tried everything but an operation.

Dr. Storrs operated on Mr. Mather in November, 1886. The cure was complete. Mr. Mather died in May, 1897.

In the three years which have elapsed since Dr. Storrs' death I have had but one opportunity to perform the operation, which I did successfully, assisted by Dr. George N. Bell of Hartford, at the Hartford Hospital in December, 1902. The patient was a woman of sixty, who had suffered for one year, the last four months of which she was in constant agony. The operation gave her immediate and absolute relief, which has continued up to the present time.

A description of the operation follows:

The Superior Maxillary, or the second division of the fifth nerve, leaves the cranium through the foramen rotundum. It then crosses the spheno-maxillary fossa, enters the orbit through the spheno-maxillary fissure, traverses the infra-orbital canal in the floor of the orbit, and appears upon the face at the infra-orbital foramen, where it divides into a number of branches, which spread out upon the side of the nose, the lower eyelid and upper lip.

The branches of this nerve may be divided into three groups:

1. Those given off in the sphenomaxillary fossa.
Orbital.
Sphenopalatine.
Posterior dental.
2. Those in the infra-orbital canal.
Anterior dental.
3. Those on the face.
Palpebral.
Nasal.
Labial.

Of all these branches the posterior dental is the most important. It is evident that the neuralgia caused by disease of this nerve or any of its branches can be cured by section of the nerve where it leaves the cranium at the foramen rotundum, and complete removal of the whole nerve.

Technique of the operation:

Place the patient half reclining in a rocking-chair, wedged with sand-bags.

The operator seats himself on a stool facing the patient, on the side of the eye on which he intends to operate.

One assistant is necessary to give the anesthetic and a second to hold the retractor.

The lower edge of the orbit can be easily felt through the skin. Make a clean incision along this edge from the inner to the outer angle of the orbit, through the tissues, including the periosteum, down to the bone.

Then with a blunt instrument, carefully elevate the periosteum from the floor of the orbit, going well back and exposing the sphenomaxillary fissure.

Lift the eye-ball out of the way with a spoon-shaped retractor, inserted under the periosteum.

Usually a bluish spot will appear, showing the situation of the infra-orbital nerve, covered with a thin plate of bone, in its canal in the floor of the orbit.

Should, however, there be any difficulty in locating the nerve it can easily be done by passing a probe into the infra-orbital foramen and up into the orbit.

Having located the nerve, with a chisel or any suitable instrument, crush the thin plate of bone covering it. The nerve can then be easily hooked up and brought to view.

The infra-orbital artery is usually torn at this time, and bleeds for a few moments, but it is of no importance, and will soon take care of itself.

Having hooked up the nerve, ligate it securely with a piece of silk passed around it with an aneurism needle. Then cut the nerve, leaving the ligature fastened to the proximal end of the cut nerve.

We now have the nerve under perfect control.

By making a slight traction on the ligature we can bring the nerve into view, and by following it on can readily crush down the thin wall of the canal and remove the fragments with suitable forceps.

When the nerve enters the spheeno-maxillary fissure it passes out of the bony canal and is only surrounded by soft structures which can easily be hooked or wiped away.

Should the spheeno-maxillary fissure be narrow, and not readily admit the introduction of instruments, it can easily be widened by inserting a suitable blunt instrument and by wedging or widening the walls.

It is remembered that the upper wall of this fissure is the strong wing of the sphenoid bone and that the lower angle is the thin wall of the antrum.

If either bone should break in these manipulations, it would be the wall of the antrum which would be crushed down and out of the way and would cause no trouble.

Having the nerve thus free to the foramen rotundum, next slip the ends of the silk ligature through a loop of wire, held with a small snare. The loop of wire in the snare is passed down the nerve to the foramen rotundum, just as a tunnel sound is passed over a filiform bougie. When the loop of wire reaches the foramen rotundum, the nerve is cut and removed.

To return now to the distal end of the nerve:

Separate the integument from the bone down to the infra-orbital foramen, gather up the mesh of nerves going to the cheek, with a hook, and drag the divided nerve through the foramen; then putting the nerve into the loop of a threaded needle, carry it down into the mouth, leaving the end which had been in the infra-orbital canal suspended between the alveolus and the upper lip; this end is cut off even with the mucous membrane.

To complete the operation, place a small gutta-percha tissue drain in the track of the nerve, extending from near the foramen rotundum to the surface. Suture the skin with catgut. The drain should be removed at the end of the twenty-four hours.

In behalf of this operation I would say, in conclusion, that it is very safe, simple, and can be performed on elderly and feeble people with but little shock. The relief is immediate in all cases, and a permanent cure is effected in many. The scar is insignificant and the patient is not confined to his bed for more than a week.

Its exact value can only be determined when more patients have been operated on, and the results more carefully noted.

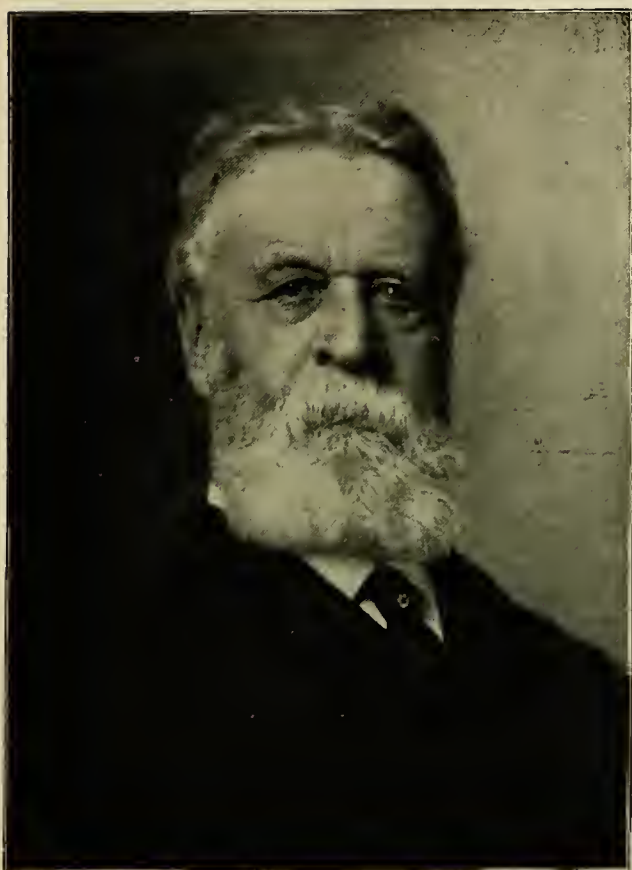
OBITUARIES.

*When the deep waters of the gliding river,
Born in weird regions of the frozen north,
In calm obedience to the great Lawgiver,
Down to the yearning sea go blindly forth—
Upon a hill-top unfrequented, lonely,
Perched on a rock that overlooks the stream,
An hour away from all that is unkindly,
I sit and gaze as in a waking dream.*

*Borne on its placid bosom, forward reaching,
I see the lazy ships go floating by,
Their idle sails against the mists hang bleaching,
No wind coquettes them from the silent sky,
But softly stealing, drifting slowly downward,
To the broad bosom of the waiting sea,
Bereft of breeze to impel them onward,
They float at ease, yet float resistlessly.*

*And as I watch them, and the hills concealing
Take them forever from my earnest gaze,
Into my soul is thrust the certain feeling,
I too am floating down the fleeting days ;
Brief lapse of time and my frail bark will enter
On the broad ocean, far beyond the sight
And all the life—all things that round life centers,
Go drifting downward to eternal night.*

—R. W. GRISWOLD.



THEODORE GAILLARD THOMAS, M.D.

Theodore Gaillard Thomas of New York City, died in Thomasville, Ga., on the twenty-eighth of February last. He was born at Edisto Island, S. C., November twenty-first, 1831. His early education was received in the College of Charleston, an institution which was founded in 1785. He left this College in his senior year and entered the Medical College of South Carolina, in the same city. He received his degree of M. D., in 1852.

Immediately after graduation he settled in New York City and became resident physician at Bellevue Hospital and at New York City Hospital, then Charity Hospital, Blackwell's Island. This gave him a fine field for work. His attention was early called to obstetrics and diseases of women. He subsequently became and for many years held the position of Professor of Obstetrics and Diseases of Women in the College of Physicians and Surgeons, New York, Surgeon to the Woman's Hospital, New York, consulting surgeon to the Nursery and Child's, the French Lying-in, the Skin and Cancer, the Presbyterian and St. Mary's Hospitals. He was also at one time physician to St. Luke's, Roosevelt and the Strangers Hospitals. This certainly includes an immense amount of work and a wide field. Honors were also conferred upon him by various societies both at home and abroad. He was one of the pioneers in American gynecology. As a teacher and clinician he was unsurpassed in his day. His courtesy and kindness of heart endeared him to the thousands of students whom he instructed, and to his brothers in the profession. His sympathy and chivalrous tenderness endeared him to his patients. Contributing largely to his popularity and his professional success was his book "Diseases of Women." This was

the first extensive and systematic work of the kind which we had had. First published in 1868 it at once became popular and was adopted as a text-book in many of the colleges. It was translated into German, French, Italian and Spanish and gave its author a world-wide reputation. It was, as Dr. Thomas says, a practical work, recording views and methods which recommended themselves on account of their merit and not on account of their novelty. He gives upon the title page the various societies with which he was connected:—Professor of Diseases of Women in the College of Physicians and Surgeons, New York; President of the American Gynecological Society for 1879; Vice President of the New York Academy of Medicine; Surgeon to the New York State Woman's Hospital; President of the Medical Board of the Nursery and Child's Hospital, New York; Consulting Physician to St. Mary's Hospital for Women, Brooklyn; Honorary Fellow of the Obstetrical Society of London; Corresponding Fellow of the Obstetrical Society of Berlin; of the Medical Society of Lima; and of the Obstetrical Society of Philadelphia; Honorary Member of the South Carolina Medical Association and of the Louisville Obstetrical Society. He was elected an Honorary Member of the Connecticut Medical Society in 1896.

His funeral was held in New York City, March 3, and was largely attended. Members of Medical Societies of which he was a member, hospital staffs on which he had served, and the faculty of the College of Physicians and Surgeons were present in great numbers to pay the last honors to their deceased colleague.

—*Jour. Am. Med. Asso.*, March 7, 1903.

RUFUS W. GRISWOLD, M.D., ROCKY HILL.

GURDON W. RUSSELL, M.D.,

HARTFORD.

Dr. Griswold left an autobiography which he had directed to be sent to me, after his death. Though there is considerable minuteness in this, it is still interesting, and, in a sense, valuable, for the information which it conveys about himself and others. It also indicates how much he was interested in historical investigation, and the pleasure which he took in genealogical studies. It may be thought by some that so full a consideration of these matters hardly belongs to a volume of our "Proceedings," which should consist strictly of medical or surgical subjects. But it may be said that the true sketch of the life of any medical man is not perfectly completed unless it tells us all about him; what he did in his profession, what he did in other pursuits, and how he fulfilled his obligations as a citizen. His education fits him especially as an investigator and lover of the natural sciences; it enlarges his field of observation in all directions; it does not necessarily lead him to ignore the only true God, as has sometimes been said, but on the contrary, it gives him strength and increased faith in the Divine Ruler. It is very apparent that he possessed considerable literary ability. He was a writer for newspapers, magazines and medical journals. In the quiet of his little town, it was doubtless a pleasure for him to use his pen. The events which had occurred here were not considered of a trifling nature. He was interested in the church, in the schools, in the good condition of the town; he was liberal and diligent in various ways, and did not fail to do his duty faithfully wherever he was placed. He showed, also, how much of interest and pleas-

ure there can be found in our little towns. His drives over extensive regions, developed his powers of observation and gave him subjects for thought and remembrance; if there is in man anything of a contemplative character he is never in want of subjects for his mind or his pen. The country physician is especially favored, as he is not disturbed by the rush and whirl of the cities. In the little Stepney, as he called it, he found enough to give him comfort and enjoyment in life. The little hamlet of Selbourn gave to Gilbert White more satisfaction than he could have found in cities innumerable, and gave to the world a work, which like *Pilgrim's Progress*, lasts for ages after him.

"And this our life exempt from public haunt
Finds tongues in trees, books in the running brooks,
Sermons in stones, and good in everything."

The town of Rocky Hill, formerly a part of Wethersfield, and called by the name of Stepney, was a fitting abiding abode for so kindly a spirit as that of Rufus W. Griswold. The autobiography which is presented below, was found upon his desk when he died, with a request that it should be sent to me. It is given as he wrote it, with the exception of a few unimportant corrections, and I feel that it will be patiently received, though it will be somewhat longer than the space which we are accustomed to give in remembrances of our deceased medical brethren. He says:

"I cannot learn that Stepney parish, Wethersfield, (now Rocky Hill), had a resident physician till 1774. At that time Dr. Aaron Hosford of Marlborough settled here. He had studied medicine with Dr. Hall of Meriden, and had married his daughter. He died here April seventh, 1804, in his fifty-seventh year, says the church record, "of suffusion of the lungs." In the Rocky Hill Cemetery is the stone with the inscription: Doct. Joseph Higgins died July 18, 1777, aged 38. His name is on the list of members of the Connecticut Medical Society in

1793. He died from consumption. He practiced here about ten years; his wife was a Williams. After the death of Dr. Hosford, came Dr. Daniel Fuller from Columbia. He was an uncle of Dr. Silas Fuller, for some years a resident of Hartford. He married Mabel, daughter of Simeon Robbins of Rocky Hill. Dr. Fuller was one of the Fellows of Hartford County in 1831 and 1836, and received the Honorary Degree of M.D., from Yale College in 1831. He is spoken of as a man of fine physique, a great mimic, and fond of telling stories, and left a reputation of special success in the treatment of fevers. He died December sixteenth, 1843, of erysipelas, in his sixty-ninth year.

About 1830, Dr. Thomas Little settled in Rocky Hill, but did not remain long. He went to New York and engaged in the business of putting up medicine chests for sea-going vessels. He graduated from Yale in 1829, and died in 1876.

Dr. Phineas T. Miller, a graduate from Yale, in 1835, was practicing in Rocky Hill in 1838; was here two or three years, and then went West. Later he practiced in New Haven, and died there in 1850; his body was brought here for interment.

Before the death of Dr. Fuller, and in 1841, Dr. Ashbel W. Barrows settled in Rocky Hill, remaining about seven years, and then going to Hartford. (See Medical Proceedings, 1891).

On the removal of Dr. Barrows came Dr. Sylvester Bulkley, in 1848. He died here in 1857. (See Medical Proceedings of that year).

Rufus W. Griswold was a descendant of the eighth generation from Edward Griswold, an emigrant from England, who settled in Windsor in 1639; a son of Julius and a grandson of Dr. George Griswold of Manchester. Dr. George G. was a prominent practitioner of his generation, and was highly esteemed as a citizen and a magistrate. He came from Harwinton, studied medicine

with Dr. Abernethy of Litchfield, and settled in Orford parish (now Manchester, East Hartford) about 1782, and practiced there until his death in 1821, aged sixty-five. He was one of the original members of the Connecticut Medical Society, a Fellow 1802, 3, 4, 7. and 8, and in 1798, 9, was one of the committee of examination for Hartford County. He was a member of the General Assembly in 1800. His professional contemporaries in East Hartford at the formation of the Connecticut Medical Society were Dr. Samuel Flagg, senior and junior, Dr. John Skinner, and Dr. Timothy Hall.

Dr. Rufus W. Griswold was born in Manchester, February, 1825. His boyhood was spent with his maternal grandfather, Samuel Arnold, Jr., in the southeast part of East Hartford; his mother was Ann, daughter of Samuel Arnold, Jr., a descendant of John Arnold, in Hartford in 1639. At the age of seventeen he began to learn the printers' trade in the office of the Hartford Times, and was there as an apprentice four years, one year as journeyman, and one year as foreman. He then started the New England Weekly Gazette in Hartford, and published it for two years. The paper had a large circulation for country papers of that day, but the credit system for subscribers did not allow the enterprise to pay, and it was relinquished. In the spring of 1850 he went to New York, and soon began the study of medicine. He attended lectures in the College of Physicians and Surgeons, then in Crosby Street the terms of 1852-3 and 1853-4, and received the degree in March of the latter year. In the summer of 1853 he was resident assistant physician in the Colored Home Hospital in New York. During these four years, 1850 to 1854, he wrote newspaper tales for several literary papers; edited the Empire City some months, and for a few months was assistant editor of the Brooklyn Morning Journal. He returned to Connecticut immediately after graduating in medicine and settled in Rocky Hill, where he practiced until his death.

He became a member of the County and State Medical Societies in 1854; was several times one of the Fellows and President of the County Society in 1873 and 1879; for several years one of the School Visitors in Rocky Hill; Town Clerk for four and one-half years; house member of the General Assembly in 1883 and chairman of the Committee on Contingent Expenses. After beginning private practice he laid aside his pen, except for business matters, and did not use it much for the next twenty years, but about 1874 he began writing for medical journals. The articles were practical and plain, and were never rejected. Several of his contributions appeared in our "Proceedings." Among them is one in the volume for 1892, "On the Materia Medica and Therapeutics of a Hundred Years Ago." The reports of the Connecticut Board of Health for 1885 and 1886 have several papers by him, written at the request of Dr. C. A. Lindsley, Secretary of the Board, on the history of Malarial Manifestations in Southwestern New England, with observations on the causes of the epidemic Intermittent that prevailed from 1870, on The progress of ague and fever up the Housatonic River into Berkshire County, Mass., which brought about the prosecution of the Smith Paper Company, on a charge that its mill pond caused that disease. A paper by Dr. Griswold published in the Philadelphia Clinical News, on the generally charged causes of ague, coming to the attention of the defendant in the case, brought about a correspondence between him and the attorneys of the defendant, in which Dr. Griswold marked out the line of the defence, and also became a witness for the company, in the complete failure of that prosecution. No like litigation in that line has since been successful, and very little has been attempted.

In 1879 or '80, Dr. Griswold put before the Connecticut Legislature a bill for a medical practice act. It contained the marrow of what has since been obtained. The

rule concerning the introduction of new business, preventing its consideration, he at the next session introduced a like bill, but the members of the Judiciary Committee were against anything at that time. Later efforts have been more successful, and a deal of good has been obtained.

Dr. Griswold had long been a member of the Connecticut Historical Society. He leaves to it a large manuscript history of Stepney from its first white settlement in 1655 to 1875.

NOTE. (This manuscript is now in the possession of Dr. H. R. Stiles of New York, who is preparing a History of Ancient Wethersfield, and in this, will be included the history of Stepney's parish by Dr. Griswold. It is learned that the publication may soon be expected).

He became a member of the Connecticut Society of Sons of the American Revolution at its organization, April second, 1889, and was one of its Board of Managers for eleven years.

Dr. Griswold married Esther Eliza, daughter of Elijah Hammond of Vernon, December twenty-third, 1851. They have three sons, Roger M., Edward H., and Julius E., all graduates in medicine from the New York University Medical College.

This ends his autobiography, somewhat minute perhaps, but pardonable for its honest and open speaking, and valuable for the genealogical and historical matter which it contains.

My acquaintance with Dr. Griswold commenced many years since; we fell naturally into our friendship for one another, and I was led to value him for his sterling character of honesty and ability. His whole life shows how much was due to his own industry and perseverance. His own record shows how continuously he exerted himself to obtain an education, and to employ his time. He had that happy temperament which was not discouraged by failure. After a successful apprentice-

ship as a printer, he became a foreman and graduated from that vocation which has produced so many eminent men in the world. His son, Roger, writes: "His early education in the public schools was supplemented by one or two years in the Glastonbury Academy, and that by his own unaided efforts he afterwards became a proficient Latin scholar. Since his death I find among his papers many evidences of an extensive correspondence with the leading professional and literary men of the country. I had always known that he had decided poetical ability, but had supposed that he indulged it only for his own amusement, or occasionally for that of his friends. But I now find the original manuscript of several well-known, but hertofore anonymous poems of which he was evidently the author. Among others, 'The Floating Ships,' 'Gettysburg,' 'The Loss of the Onaida,' 'Adieu,' 'Happy Kingdom,' 'The Drummer Boy,' 'A Hundred Years Ago,' 'The Hermit,' 'Castles in the Air,' 'The Uncertain Future.' These with many others are in the original manuscript."

I copy three stanzas from "The Floating Ships."

THE FLOATING SHIPS.

"When the deep waters of the gliding river,
 Born in weird regions of the frozen north,
 In calm obedience to the great Lawgiver,
 Down to the yearning sea go blindly forth—
 Upon a hill-top unfrequented, lonely,
 Perched on a rock that overlooks the stream,
 An hour away from all that is unkindly,
 I sit and gaze as in a waking dream.

Borne on its placid bosom, forward reaching,
 I see the lazy ships go floating by,
 Their idle sails against the masts hang bleaching,
 No wind coquettes them from the silent sky,
 But softly stealing, drifting slowly downward,
 To the broad bosom of the waiting sea,
 Bereft of breeze to impel them onward,
 They float at ease, yet float resistlessly.

And as I watch them, and the hills concealing
Take them forever from my earnest gaze,
Into my soul is thrust the certain feeling,
I too am floating down the fleeting days ;
Brief lapse of time and my frail bark will enter
On the broad ocean, far beyond the sight
And all the life—all things that round life centers,
Go drifting downward to eternal night."

He was a good practitioner, sensible, attentive, discriminating, possessed a thorough knowledge of remedies and understood what they were likely to accomplish. For many years I was accustomed to see cases with him, and I can bear witness that he was a faithful and careful practitioner. There was no attempt at display in his treatment, or pretence of attempting to know more than he was conscious of knowing. His modesty was extreme in all that he did or attempted to do. For a long period he was regarded as a valuable man in the town. His perceptions were very acute, whether in his own particular profession or in the various positions which he held; it was a maxim with him to endeavor to do all that was possible in all his undertakings.

His attachment to his profession was great. It was honorable and deserving of respect. I can recall no words of his which were derogatory towards it. The fact that he put three of his sons into it shows the sincerity of his opinion.

Much more might be said, but this is enough. In paying this tribute, I am led to look back upon my own life, and bring to remembrance the many members of this Society with whom I have held sweet intercourse. I think there are none now living who were members when I entered it, and a few only who were active practitioners for some years afterwards. Involuntarily there pass in review the early meetings which were attended, and the very little of a medical character which accompanied them; very little was done, either by Counties or by the

State, except the annual election of officers and partaking of a dinner. A few pages of print composed the pamphlet of our "Proceedings." There is no need of further criticism, but to contrast it with our present volumes. A feeling sometimes comes over me that I should like again to put my armor on, but reflection counsels a wiser step, and so I content myself by taking up a medical work and read it with great satisfaction.

Our county meetings in early days were attended by few only. Fessenden's Tavern gave us a place of refuge, and thirty-seven and one-half cents paid for our dinner. Now, what a change! A noble memorial building satisfies all our desires, and is an honorable testimony to a noble man.

FRANK BENJAMIN TUTTLE, M.D.

M. J. DELANEY, M.D.,

NAUGATUCK.

Frank Benjamin Tuttle, son of Zopher and Nancy (Sherman) Tuttle, was born in June, 1840, at Prospect, Conn. Before entering Yale Medical school, he studied in the Naugatuck High School, and in Canton Academy, Canton, N. Y. After graduation, he spent one year as ship surgeon on the Black Ball Line between Liverpool and New York. He settled in Naugatuck in 1864, where he has since practiced his profession. He was non-resident consulting physician to the Waterbury Hospital and at the time of his death President of the New Haven County Medical Association. Dr. Tuttle died at his home in Naugatuck, on April twenty-first, 1902, from cerebral embolism. He was subject for some years previously to angina pectoris and syncope. For the last ten years of his life Dr. Tuttle spent the winter months in Florida and engaged very little in active practice. In religion, he was a member of St. Michael's Protestant Episcopal Church. He married on February twentieth, 1868, Ella Augusta, daughter of Emory D. Mann, of Naugatuck, who died in 1893. He afterward married Ann M. A. Sloan, daughter of James Sloan, Rochester, N. Y. By the first marriage, he had a daughter and a son, of whom the former is deceased. The son, Frank J. Tuttle, is a practicing physician in Naugatuck. In the community where he dwelt, he was influential in shaping its affairs, taking a keen interest in all matters pertaining to the welfare of the town. For over twenty-three years, he was a member of the Board of Education and the majority of the time its President. He represented the town several times in the Legislature and was Medical

Examiner since the office was first established. Dr. Tuttle might well be deemed a slave to his profession. For almost forty years he did a large general practice. In obstetrics, he was eminently skillful and successful. He occasionally remarked that he often attended both mother and daughter in confinement. During his busy years he was notably careless of his personal comfort. Always ready at the demand of the unreasonable or nervous patient, he spared himself not, but devoted precious hours of rest to comforting and aiding the woman in labor. He responded to the call of the impoverished as readily as to the wealthy and accumulated a larger share of doubtful debts, through his kindness of heart, than usually falls to the lot of the country doctor. Dr. Tuttle's bearing to his colleagues was ever kind and courteous, always loyal in consultation and in succeeding a brother physician in attendance on a case. I remember shortly after settling in Naugatuck, over ten years ago, several of the physicians of the town bore strained relations to one another. Dr. Tuttle succeeded in smoothing over all differences and forming a local medical society which met by rotation at each member's home and added materially to the social and professional welfare of all belonging. He died without occupying the chair of President to the society, an honor which would be a just appreciation of a life-long faithful member.

SHERMAN HARTWELL CHAPMAN, A.M., M.D.,
OF NEW HAVEN, CONNECTICUT.

BY GUSTAVUS ELIOT, A.M., M.D.,

NEW HAVEN.

Sherman Hartwell Chapman, the eldest of the three sons of Timothy Pitkin, and Rachel Thompson (Hartwell) Chapman, was born in New Haven, Connecticut, February twenty-second, 1846. His father, a man of great integrity and uprightness, early in life was a clerk for the late Hon. Simeon B. Chittenden, then a dry goods merchant in New Haven, and later became his partner in the firm of Chittenden & Chapman. Subsequently the business was removed to New York, and Mr. Chapman retired. These two gentlemen married sisters, the daughters of Sherman Hartwell, who established a trading post in Warren, and afterwards removed to Bridgeport where he accumulated a fortune. A third daughter was the wife of Dr. Robert Hubbard, of Bridgeport. The three sisters were descendants of Roger Sherman, and were women of unusual strength of character and marked intellectuality.

Mrs. Chapman died shortly after the birth of her third son, and the eldest son, Sherman, was, at the age of seven years, sent to boarding school. For several years he was a pupil of the Sedgwick Institute at Stratford, and entered Yale College in 1862. He received the degree of Bachelor of Arts in 1866, and three years later was given the degree of Master of Arts. He studied medicine in New York, and graduated from the College of Physicians and Surgeons, the Medical department of Columbia College, in 1869. His thesis was awarded honorable mention, and he was appointed valedictorian of his class. Both during his undergraduate life at Yale

and during his professional studies in New York he was a classmate of Dr. L. Duncan Bulkley, of Norfolk (and New York), and of Dr. G. Pierrepont Davis of Hartford.

He began practice in Bridgeport, but in May, 1870, went to Germany where he studied in the University of Berlin and the University of Vienna. He devoted especial attention to Pathology and to diseases of the ear and throat, but also took courses in other departments of medicine.

In 1872 he settled in New Haven and opened an office in the Sheffield block on Elm Street, and shortly afterwards established a private laboratory over the store at the corner of Elm and Church Streets. A few years later he removed his office and residence to the St. John block at the corner of Church and Elm Streets. His success was pronounced from the first, and during the succeeding ten years he became one of the most active practitioners in the city. While engaged in general medical practice he showed especial enthusiasm in the treatment of diseases of the ear, throat and respiratory organs.

He was not satisfied to work with the sole object of making his practice profitable financially for himself, but showed also a desire to assist in the permanent advancement of scientific professional knowledge by contributions to medical literature. In the *American Journal of the Medical Sciences* for October, 1872, edited by Dr. Isaac Hays, assisted by Dr. I. Minis Hays, the leading article was by Dr. Chapman, who then claimed New York as his residence, and was entitled "Experimental Researches on Pericarditis." As he himself writes:—"At the suggestion and with the careful criticism of Professor Stricker the studies described in the following pages were conducted in the Laboratory of Pathological Research." The article was illustrated with twelve wood-cuts, representing the microscopical

appearances observed in the specimens studied. At that time an active controversy was being carried on between Stricker and Cohnheim concerning the origin and nature of pus cells, and these experimental studies were carried on, under Stricker's direction, in order to add new knowledge concerning the subjects under discussion.

In the same journal, four years later, in October, 1877, he published a case of "Sarcoma of the Inferior Constrictor of the Pharynx and Inlet of the Oesophagus." The following issue, January, 1878, of the same periodical, contained an article from his pen on "Epithelioma Laryngis. Final Removal by Laryngo-thyrotomy."

In 1873 he was elected to membership in the New Haven County Medical Association and the Connecticut Medical Society. To the proceedings of the latter organization he made several contributions. The volume for 1875 contains an article on "Chronic Laryngitis," and also a communication entitled "Observations on the Use of Chloral Hydrate." The succeeding volume, for 1876, contains "Notes of Some Cases of Ear Disease," and also "Case of Chronic Disease of the Larynx." The following year he received an appointment as "Essayist," and in fulfillment of the duty thus imposed, at the annual convention in 1878, he presented a paper on "Therapeutics of Throat and Ear Diseases."

Having early in his professional career established a well earned reputation for unusual knowledge and skill in his chosen specialty, he was in 1879 appointed Lecturer on Diseases of the Throat and Ear in the Medical Department of Yale University. This position he continued to fill until 1885. Among his pupils, during these years, who have since become distinguished in the specialty which he taught, may be mentioned Dr. H. Holbrook Curtis and Dr. Edward B. Dench of New York, and Dr. Henry L. Swain. The latter gentleman succeeded Dr. Chapman in 1886 as lecturer in the Medical College.

He served for many years as attending physician to the New Haven Dispensary, in the Department of Diseases of the Throat and Ear, and also for nearly twenty years as attending physician to the New Haven Hospital. His wide clinical experience, his wonderful skill in the use of the most delicate instruments, his admirable tact in the management of patients, and his sound judgment in the selection of appropriate methods of treatment made his clinics deservedly popular and exceptionally useful.

In 1874 he was elected a member of the New Haven Medical Association. For many years he took an active part in the meetings, joining in the discussions, reading papers, and relating cases of interest. In those days a considerable proportion of the meetings were held at the houses of the members, and those, who twenty years ago were young practitioners, cherish most delightful recollections of his cordial hospitality and his charming entertainment. In 1890 he gave a reception to the members of the Connecticut Medical Society, in honor of the President and Fellows of that organization, on the occasion of the annual convention in New Haven.

He was elected to membership in the American Laryngological Association at the fourth annual meeting, held in New York, in 1882, being the first physician residing in Connecticut to receive this honor. His name was proposed by Dr. J. Solis Cohen, of Philadelphia, and Dr. Francke H. Bosworth, of New York City, and the subject of the thesis, which he presented as a candidate was:—"The Use of Cold in Diseases of the Upper Air Passages." He attended many of the meetings, and in June, 1894, was elected Second Vice President. Several papers read by him at the annual meetings were published in the volumes of his transactions. One on "Herpes Laryngis" was read at the sixth meeting, held in New York, in 1884; on "Myalgia of the Pharynx and Larynx," at the ninth meeting, also in New York, in

1887; on "Some Pathological Conditions of the Upper Air Passage Coincident with Attacks of La Grippe," at the fourteenth meeting, in Boston, in 1892; and "Notes on the Treatment of Diphtheria," at the eighteenth meeting, at Pittsburg, Penn., in 1896.

He was elected a member of the American Climatological Association, in 1887, and two years later presented before it two papers, one on "Diphtheria in High Altitudes," and a second on "Sugar in the Urine of Asthmatics."

He was, for a time, a member of the American Medical Association, and was also an honorary member of the Laryngological Societies of Paris and Berlin.

On June seventeenth, 1869, at Springfield, Mass., he was married to Miss M. Louise Enstis, daughter of the Rev. William T. Enstis, D. D., formerly pastor of the Chapel Street Church (later called the Church of the Redeemer), of New Haven. One child, a daughter, Rachel Hartwell Chapman, was born in Vienna, Austria, on May twenty-second, 1871. She died of diphtheria in Brooklyn, where she had been attending school, in March, 1888. Her death threw a cloud over the lives of both Dr. and Mrs. Chapman, from which neither ever entirely emerged. Mrs. Chapman died in April, 1901, and on June thirtieth, 1902, Dr. Chapman married Miss Helen Baldwin, of Danbury.

Early in the spring of 1903, signs of deterioration of his customary vigor began to be observed by his friends, and when finally he was persuaded to seek the assistance of one of his professional neighbors, he was found to be suffering from organic disease of the heart. Shortly afterwards cerebral thrombosis developed, and although he was attended most assiduously by Dr. Charles J. Foote, and his skill was supplemented by the counsel of Dr. Charles L. Dana, of New York, it was impossible to prevent dissolution, and he died on April sixteenth, 1903. He was buried, in the family lot, in Stockbridge, Mass.

His devotion to his Alma Mater never waned, and he bequeathed to the University his medical library, described by Prof. Van Name, the Librarian of the University, as "an unusually valuable collection of about 500 volumes; in it are included Virchow's *Archiv für pathologische Anatomie und Physiologie*, complete to 1897, in 150 volumes, Hebra's *Atlas der Hautkrankheiten*, and other costly publications." During his undergraduate days he was a member of the Alpha Delta Phi fraternity, and when, in 1883, the third senior society, known as Wolf's Head, was founded, he was elected an honorary member. He was also a member of the University Clubs of New York and Boston, and of the Graduates Club of New Haven.

He especially appreciated fine music and contributed liberally toward the production of good music in the city. He had an excellent and well-cultivated voice, and years ago took an active part in musical organizations.

He was fond of out-of-door life, and was particularly devoted to riding and driving. When his practice was most active, he was in the habit of rising early, and driving into the neighboring towns to see patients, before most of his professional neighbors had commenced their breakfasts. His horses were always carefully selected, and his traps and carriages were always noticeable for their elegance. He was a member of the New Haven Lawn Club, and of the New Haven Country Club.

His personality was striking. He was always immaculate in dress, cheerful and cordial in manner, entertaining and instructive in conversation, a faithful and helpful friend, a public-spirited citizen and a leader in the most exclusive society.

As a physician his reputation among educated and intelligent people, both of New Haven and of surrounding towns and neighboring cities, was unsurpassed. He was one of the first in New Haven to introduce into gen-

eral practice modern scientific methods, as they were taught in the German Universities. Outside of his manual dexterity in the treatment of cases within the domain of his special fields of Laryngology and Otology, his great success in the management of patients seems to have been due to his skill in devising and carrying out methods of restorative treatment. By the combined use of stimulating and tonic medicaments, with the most easily assimilable and most nutritious forms of nourishment, prescribed with the most minute directions as to how much of, and how often, each should be taken, he brought new hope to many who had abandoned themselves to chronic invalidism; but who, while carrying out the regime which he had directed, found their strength returning, their weight increasing and their usefulness being restored.

FRANK BROWNLIE NEWTON, M.D.,
STAFFORD SPRINGS.

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E. P. FLINT, M.D.,

ROCKVILLE.

Frank B. Newton was born at Stafford Springs, December twenty-third, 1874, and died February nineteenth, 1903. He became known by, and associated with, the people as only one can who passes his whole life in his native town. As a child, a favorite with his playfellows, he won their respect and esteem, which he retained until his youth, his circle of acquaintances and friends steadily enlarging.

Of attractive personal appearance, his cheerful temperament and bright mental qualities gave promise of a more than ordinary career.

He early developed a love of nature and the beautiful, and the more exact and exacting researches of science soon became an attraction. This bent decided the question of his future, for ere he had hardly emerged from boyhood he had chosen medical practice for his life work.

His fondness for the study of the natural sciences, his normal desire to solve for himself the occult mysteries of nature, brought rapidly a mental poise and depth, and when only eighteen years of age, he began the study of his chosen profession at Harvard.

His course there was followed by two years at Bellevue, and he graduated at the University of Vermont in 1899, and the same year passed the examinations before the State Board at New Haven. He located for practice in his native place in company with his father, C. B. Newton, M.D., who has been for nearly half a century a most successful and respected physician, and is an ex-President of the Connecticut State Medical Society.

With his thorough preparation and his father's mature and practical counsel ever at command, the conditions looking to success were plainly in his favor.

Added to his pleasing manner and address was a quiet but marked executive force, and he soon won a place and the confidence of the people as one who gave his patient his careful and studious attention, and was credited as a young physician who faithfully and earnestly cared for those of whom he had charge; of one who was wedded to his profession, and one who believed that of all pursuits that of the physician best proved his love of his fellow man, and that the physician's chosen field was the noblest of them all.

There was in him the promise of a bright and useful future, and his young life was cut off at the very beginning of his career. He contracted typhoid pneumonia during its prevalence from exposure to the rigor of our winter climate, as many another of our noble brothers have suffered and fallen while relieving the suffering of others.

His wife, who, with an infant daughter survive him, was the daughter of Prof. O. D. Pomeroy, one of the founders of Manhattan Eye and Ear Infirmary.

He was a Mason and a member of the Temple of Honor. These attended his funeral in a body. The Masons conducted the service at the grave, while many other friends and citizens were present at the last sad rites of the young and beloved physician.

APPENDIX.

At the annual meeting in Hartford the following recommendation of the Committee on Unfinished Business was adopted. . Proceedings, p. 19.

We recommend that a matter of so much importance as the revision of our by-laws be referred to a committee appointed by the President at this meeting, said committee to consist of the President and Secretary of the State Society, together with one member from each county, making the entire committee ten in number. We further recommend that this committee be required to have their report completed and printed in sufficient time for the county societies to act upon them at their Fall meeting, which will allow ample time for the Society's action before the next meeting of the Legislature.

The committee consists, besides the President and Secretary, of E. J. McKnight, Hartford County; C. S. Rodman, New Haven County; L. B. Almy, New London County; W. H. Donaldson, Fairfield County; S. B. Overlock, Windham County; J. S. Bissell, Litchfield County; J. F. Calef, Middlesex County; E. P. Flint, Tolland County.

To give as large a circulation as possible to the subject it has been deemed advisable to print the Constitution and By-Laws for State Associations, which it is proposed that we adopt, by the American Medical Association.

N. E. WORDIN,
Secretary.

CONSTITUTION AND BY-LAWS FOR STATE ASSOCIATIONS AS PREPARED BY THE COMMITTEE APPOINTED BY THE AMERICAN MEDICAL ASSOCIATION, AND RECOMMENDED FOR ADOPTION TO STATE ASSOCIATIONS

PREFATORY NOTE.

There has been an expressed desire on the part of the officers, members and committees of nearly all the state societies to comply with the recommendations of the American Medical Association in regard to a more uniform organization of the state bodies. The committee has thought best to prepare a constitution and by-laws for state societies that shall incorporate the general principles recommended to and adopted by the American Medical Association, and it here submits such constitution and by-laws to the consideration of all who may be interested.

The importance of practical uniformity in the essential features of organization in every state is so great, and has so constantly grown on all who have had opportunity for observing the work in the states which adopted plans of reorganization last year, that an earnest plea is made to those who have the matter in charge in other states not to depart from the Association plan, in the absence of the most obvious reasons for doing so. One of the prime objects of the movement from the outset has been to get rid of the crazy-quilt system, or rather, the lack of system, which has long stood in the pathway of every effort at legislative and other reforms, and to secure such unity of both purpose and methods as would make the voice of profession effective. The plan has now been so fairly and successfully tried, under such varied conditions, and in such widely separated states, as to demonstrate its adaptability to use in any state. It is no longer an experiment.

The four essential features provided in the constitution and by-laws are so interdependent, that no one of them can be cut out without weakening the plan as a whole. This statement is based on the experience of those states which reorganized last year, and which left out one or more features, usually the House of Delegates, or Council, as compared with what has been accomplished in the same time, and under very similar conditions, in the still large number of states which accepted the plan as a whole.

The four essential features of the Association plan, named in the order of their importance, are: 1. The county society, as the unit of organization, and the foundation for everything above it. 2. The House of Delegates, composed of a specially selected and limited number of representatives from the county societies, to

look after and foster scientific legislative and material interests of the profession. 3. A Council, to be selected from the profession at large, to act for the House of Delegates, under well-defined restrictions, in the interval between meetings. 4. The General Meeting, composed of all the members of all the county societies who will attend, which can devote its entire time and attention to the reading and discussion of papers and to other scientific work. Thus the General Meeting is relieved of the miscellaneous business which consumed so much time in the past with so little profit, and of the election of officers, which was often a source of distraction and discontent.

It is true that much contained in the by-laws, where a wide departure is made from the brevity and compactness of expression observed in the constitution, is explanatory, suggestive and educational in character, and much is embraced which would not be necessary if such an organization of the profession as is contemplated was already in existence. In justification for this it is submitted that, under existing conditions, it is as important to furnish incentives to this work, to give practical and detailed information as to how it is to be done, and to put the reasons for all of it within easy reach of those who, as councilors and volunteers, will discuss the subject from one end of the country to the other, as it is to furnish the foundation and framework of the superstructure set forth in the constitution.

Amendment of the by-laws is purposely made easy, and after the organization has been accomplished, which will require more time and self-sacrificing labor than is generally understood, anything found obsolete or impracticable can be easily eliminated, or replaced by provisions better adapted to needs then existing.

Committees on organization yet to report, and members of state societies which have not reorganized, are urged to give this subject the consideration to which it is entitled, and especially are they urged not to change a plan designed and recommended for universal adoption by the American Medical Association merely for the sake of change. Doubtless another committee might have devised something better, but, conceding this to be true, a departure from it now can not be otherwise than a step backward. If the profession of any state is not sufficiently advised or for any other reason is not ready to act favorably on the plan as a whole, it will be far better, in the light of the experience of those states which acted differently, to postpone action for another year. However well intended, any other course is unjust to and is likely to bring discredit on the entire plan of organization, and in the end will work an injustice on the profession of state where it is done.

J. N. McCORMACK,
P. MAXWELL FOSHAY,
GEORGE H. SIMMONS,

Committee on Organization of the American Medical Association.

CONSTITUTION.

ARTICLE I.—NAME OF THE ASSOCIATION.

The name and title of this organization shall be the
——— State Medical Association.

ARTICLE II.—PURPOSES OF THE ASSOCIATION.

The purposes of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of ———, and to unite with similar societies of other States to form the American Medical Association; to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of State medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES.

Component Societies shall consist of those county medical societies which hold charters from this Association.

ARTICLE IV.—COMPOSITION OF THE ASSOCIATION.

SECTION 1. This Association shall consist of Members, Delegates and Guests.

SEC. 2. MEMBERS. The Members of this Association shall be the members of the component county medical societies.

SEC. 3. DELEGATES. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component societies in the House of Delegates of this Association.

SEC. 4. GUESTS. Any distinguished physician not a resident of this State who is a member of his own State Association may become a guest during any Annual Session on invitation of the officers of this Association, and shall be accorded the privilege of participating in all of the scientific work for that Session.

ARTICLE V.—HOUSE OF DELEGATES.

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates elected by the component county societies, (2) the Councilors, and (3), ex officio, the President and Secretary of this Association.

ARTICLE VI.—COUNCIL.

The Council shall consist of the Councilors, and the President and Secretary, ex-officio. Besides its duties mentioned in the By-Laws, it shall constitute the Finance Committee of the House of Delegates. ————— Councilors shall constitute a quorum.

ARTICLE VII.—SECTIONS AND DISTRICT SOCIETIES.

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

ARTICLE VIII.—SESSIONS AND MEETINGS.

SECTION 1. The Association shall hold an Annual Session, during which there shall be held daily General Meetings, which shall be open to all registered members, and guests.

SEC. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE IX.—OFFICERS.

SECTION 1. The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and ——— Councilors.

SEC. 2. The officers, except the Councilors, shall be elected annually. The President shall appoint the first Councilors, to serve for one year, or until their successors are elected. The terms of the elected Councilors shall be for three years, those first elected serving one, two and three years, as may be arranged. All of these officers shall serve until their successors are elected and installed.

SEC. 3. The officers of this Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon that Annual Session, and who has not been a member of the Association for the past two years.

ARTICLE X.—RECIPROCITY OF MEMBERSHIP WITH OTHER STATE SOCIETIES.

In order to broaden professional fellowship this Association is ready to arrange with other State Medical Associations for an interchange of certificates of membership, so that members moving from one State to another may avoid the formality of re-election.

ARTICLE XI.—FUNDS AND EXPENSES.

Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates, but shall not exceed the sum of \$2.00 per capita per annum,

except on a four-fifths vote of the Delegates present. Funds may also be raised by voluntary contributions, from the Association's publications, and in any other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Association, for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Finance Committee before action is taken thereon.

ARTICLE XII.—REFERENDUM.

SECTION 1. A General Meeting of the Association may, by a two-thirds vote of the members present, order a general referendum on any question pending before the House of Delegates, and when so ordered the House of Delegates shall submit such question to the members of the Association, who may vote by mail or in person, and, if the members voting shall comprise a majority of all the members of the Association, a majority of such vote shall determine the question and be binding on the House of Delegates.

SEC. 2. The House of Delegates may, by a two-thirds vote of its own members, submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding on the House of Delegates.

ARTICLE XIII.—THE SEAL.

The Association shall have a common Seal, with power to break, change or renew the same at pleasure.

ARTICLE XIV.—AMENDMENTS.

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates present at any Annual Session, provided that such amendment shall have been presented in open meeting at the previous annual session, and that it shall have been

published twice during the year in the bulletin or journal of this Association, or sent officially to each component society at least two months before the meeting at which final action is to be taken.

BY-LAWS.

CHAPTER I.—MEMBERSHIP.

SECTION 1. The name of a physician on the properly certified roster of members of a component society, which has paid its annual assessment, shall be prima facie evidence of membership in this Association.

SEC. 2. Any person who is under sentence of suspension or expulsion from a component society, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.

SEC. 3. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified, by reference to the roster of his society, he shall receive a badge, which shall be evidence of his right to all the privileges of membership at that Session. No member shall take part in any of the proceedings of an Annual Session until he has complied with the provisions of this section.

CHAPTER II.—ANNUAL AND SPECIAL SESSIONS OF THE ASSOCIATION.

SECTION 1. The Association shall hold an Annual Session at such time and place as has been fixed at the preceding Annual Session by the House of Delegates.

SEC. 2. Special meetings of either the Association or of the House of Delegates shall be called by the President on petition of twenty delegates or fifty members.

CHAPTER III.—GENERAL MEETINGS.

SECTION 1. All registered members may attend and participate in the proceedings and discussions of the General Meetings and of the Sections. The General Meetings shall be presided over by the President or by one of the Vice-Presidents, and before them shall be delivered the address of the President and the orations.

SEC. 2. The General Meeting may recommend to the House of Delegates the appointment of committees or commissions for scientific investigation of special interest and importance to the profession and public.

CHAPTER IV.—HOUSE OF DELEGATES.

SECTION 1. The House of Delegates shall meet at 2 P. M. on the day before that fixed as the first day of the annual session. It may adjourn from time to time as may be necessary to complete its business, provided, that its hours shall conflict as little as possible with the General Meetings. The order of business shall be arranged as a separate section of the program.

SEC. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every 100 members, and one for each major fraction thereof, but each component society which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate.

SEC. 3. Twenty delegates shall constitute a quorum.

SEC. 4. It shall, through its officers, Council and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping stone to future ones of higher interest.

SEC. 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

SEC. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

SEC. 7. It shall encourage post-graduate and research work, as well as home study, and shall endeavor to have the results utilized and intelligently discussed in the county societies.

SEC. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

SEC. 9. It shall, upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws.

SEC. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein

for county societies, until such counties may be organized separately.

SEC. 11. It shall divide the State into Councilor Districts, specifying what counties each district shall include, and, when the best interest of the Association and profession will be promoted thereby, organize in each a district medical society, and all members of component county societies, and no others, shall be members in such district societies. When so organized, from the Presidents of such district societies shall be chosen the Vice-Presidents of this Association, and the Presidents of the county societies of the district shall be the Vice-Presidents of such district societies.

SEC. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

SEC. 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

CHAPTER V.—ELECTION OF OFFICERS.

SECTION 1. All elections shall be by ballot, and a majority of the votes cast shall be necessary to elect.

SEC. 2. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session.

SEC. 3. Any person known to have solicited votes for or sought any office within the gift of this Association shall be ineligible for any office for two years.

CHAPTER VI.—DUTIES OF OFFICERS.

SECTION 1. The President shall preside at all meetings of the Association and of the House of Delegates;

shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the county societies, and in making their work more practical and useful.

SEC. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of the President's death, resignation or removal, the Council shall select one of the Vice-Presidents to succeed him.

SEC. 3. The Treasurer shall give bond in the sum of \$——. He shall demand and receive all funds due the Association, together with the bequests and donations. He shall pay money out of the Treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

SEC. 4. The Secretary shall attend the General Meetings of the Association and the meetings of the House of Delegates, and shall keep minutes of their respective proceedings in separate record books. He shall be ex-officio Secretary of the Council. He shall be custodian of all record books and papers belonging to the Association, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates of the Annual Sessions. He shall, with the co-operation of the secretaries of the component societies, keep a card-index register of all the legal practitioners of the State by counties, noting on

each his status in relation to his county society, and, on request, shall transmit a copy of this list to the American Medical Association. He shall aid the Councilors in the organization and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence notifying members of meetings, officers of their election and committees of their appointment and duties. He shall employ such assistants as may be ordered by the House of Delegates, and shall make an annual report to the House of Delegates. He shall supply each component society with the necessary blanks for making their annual reports; shall keep an account with the component societies, charging against each society its assessment, collect the same, and at once turn it over to the Treasurer. Acting with the Committee on Scientific Work, he shall prepare and issue all programs. The amount of his salary shall be fixed by the Council.

CHAPTER VII.—COUNCIL.

SECTION 1. The Council shall meet on the day preceding the Annual Session, and daily during the Session, and at such other times as necessity may require, subject to the call of the chairman, or on petition of three Councilors. It shall meet on the last day of the Annual Session of the Association to organize and outline work for the ensuing year. It shall elect a chairman and a clerk, who, in the absence of the Secretary of the Association, shall keep a record of its proceedings. It shall, through its chairman, make an annual report to the House of Delegates.

SEC. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit the counties in his district at least once a year for the purpose of organizing component societies where none exists; for inquiring into the condition of the profession, and for improving and increasing the zeal of the county

societies and their members. He shall make an annual report of his work and of the condition of the profession of each county in his district at the Annual Session of the House of Delegates. The necessary traveling expenses incurred by such Councilor in the line of the duties herein imposed may be allowed by the House of Delegates on a proper itemized statement, but this shall not be construed to include his expense in attending the Annual Session of the Association.

SEC. 3. The Council shall be the board of censors of the Association. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component societies on which an appeal is taken from the decision of an individual Councilor, and its decision in all such matters shall be final.

SEC. 4. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies, to be suitably designated so as to distinguish them from district societies, and these societies when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

SEC. 5. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Association, and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of the Association. As the Finance Committee it shall annually audit the accounts of the Treasurer and Secretary

and other agents of this Association and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Association during the year, and the amount of all other property belonging to the Association under its control, with such suggestions as it may deem necessary. In the event of a vacancy in the office of the Secretary, or the Treasurer, the Council shall fill the vacancy until the next annual election.

CHAPTER VIII.—COMMITTEES.

SECTION 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Arrangement, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

SEC. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be one, and shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the House of Delegates. Thirty days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented.

SEC. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of the public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall strive to organize professional

influence so as to promote the general good of the community in local, state and national affairs and elections.

SEC. 4. The Committee of Arrangements shall be appointed by the component society in which the Annual Session is to be held. It shall provide suitable accommodations for the meeting-places of the Association and of the House of Delegates, and of their respective commitments. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

CHAPTER IX.—COUNTY SOCIETIES.

SECTION 1. All county societies now in affiliation with this Association or those which may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, on application, receive a charter from and become a component part of this Association.

SEC. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

SEC. 3. Charters shall be issued only upon approval of the Council or House of Delegates and shall be signed by the President and Secretary of this Association. The Council or the House of Delegates shall have authority to revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

SEC. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the Councilor for the District if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may

be made to the Council, which shall decide what action shall be taken.

SEC. 5. Each county society shall judge of the qualification of its own members, but, as such societies are the only portals to this Association and to the American Medical Association, every reputable and legally registered physician who does not practice or claim to practice, nor lend his support to, any exclusive system of medicine, shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

SEC. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right to appeal to the Council, and its decision shall be final.

SEC. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a Board and as individual Councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

SEC. 8. When a member in good standing in a component society moves to another county in this State, his name, on request, shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

SEC. 9. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

SEC. 10. Each component society shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physi-

cian in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

SEC. 11. At some meeting in advance of the Annual Session of this Association, each county society shall elect a delegate or delegates to represent it in the House of Delegates of this Association, in the proportion of one delegate to each fifty members or fraction thereof, and the Secretary of the society shall send a list of such delegates to the Secretary of this Association, at least ten days before the Annual Sessions.

SEC. 12. The Secretary of each component society shall keep a roster of its members and of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

SEC. 13. The Secretary of each component society shall forward its assessment, together with its roster of officers and members, list of delegates, and list of non-affiliated physicians of the county to the Secretary of this Association each year thirty days before the Annual Session.

SEC. 14. Any county society which fails to pay its assessment, or make the report required, on or before ————, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

CHAPTER X.—MISCELLANEOUS.

SECTION 1. No address or paper before the Association, except those of the President and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject except by unanimous consent.

SEC. 2. All papers read before the Association or any of the Sections shall become its property. Each paper shall be deposited with the Secretary when read.

SEC. 3. The deliberations of this Association shall be governed by parliamentary usage as contained in Roberts' Rules of Order, when not in conflict with this Constitution and By-Laws.

SEC. 4. The Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XI.—AMENDMENTS.

These By-Laws may be amended at any Annual Session by a majority vote of all the delegates present at that session, after the amendment has laid on the table for one day.

MEMBERS OF THE SOCIETY.

HONORARY MEMBERS.

ANDREW JACOB FULLER,	Bath, Me.
ARTHUR WARD,	Newark N. J.
ADRIAN THEO. WOODWARD,	Brandon, Vt.
WILLIAM McCOLLOM,	Brooklyn, N. Y.
AGRIPPA NELSON BELL,	Brooklyn, N. Y.
JOHN SHAW BILLINGS, U. S. A.,	New York City.
THOMAS ADDIS EMMETT.	New York City.
WILLIAM HENRY WELCH,	Baltimore, Md.
ROBERT FULTON WEIR,	New York City.
SIR JOSEPH LISTER,	London, Eng.
EDWARD G. JANEWAY,	New York City.
HON. CHARLES E. GROSS,	Hartford.
DAVID WEBSTER,	New York City.
SIR JAMES GRANT,	Ottawa, Can.
HENRY O. MARCY,	Boston, Mass.
T. MITCHELL PRUDDEN,	New York City.
WILLIAM W. KEEN,	Philadelphia.
JAMES W. McLANE,	New York City.
FREDERICK HOLME WIGGIN,	New York City.
SENECA D. POWELL,	New York City.
J. W. S. GOULEY,	New York City.
REYNOLD WEBB WILCOX,	New York City.

ACTIVE MEMBERS.

The names of those who have been Presidents are in capitals.

HARTFORD COUNTY.

HOWARD O. ALLEN, M.D., Broad Brook, President.

GEORGE R. SHEPHERD, Hartford, Vice President.

WILLIAM G. CRAIG, M.D., Hartford, Clerk.

County Reporter—EDWARD R. LAMPSON, M.D.,

Censors—CHARLES D. ALTON, M.D., JOSEPH H. KILBOURN, M.D.

ROBERT M. CLARK, M.D.,

Annual Meeting Thrd Wednesday in April. Semi-Annual Meeting
Thrd Wednesday in October.

HARTFORD:

GURDON W. RUSSELL, No. 207 Farmington Avenue.

HENRY P. STEARNS, No. 190 Retreat Avenue.

Horace S. Fuller, No. 95 Trumbull Street.

John O'Flaherty, No. 406 Main Street.

Nathan Mayer, No. 904 Main Street.

David Crary, No. 926 Main Street.

John B. Lewis, No. 56 Prospect Street.

Daniel T. Bromley, No. 121 Pearl Street.

Gustavus P. Davis, No. 56 Prospect Street.

Charles E. Froelich, No. 103 Pratt Street.

Harmon G. Howe, No. 137 High Street.

William T. Bacon, No. 75 Pratt Street.

William W. Knight, No. 96 Trumbull Street.

Thomas D. Crothers, No. 50 Fairfield Avenue.

George L. Parmele, No. 65 Pratt Street.

Ellen H. Gladwin, No. 705 Asylum Avenue.

SAMUEL B. ST. JOHN, No. 68 Pratt Street.

George R. Shepherd, No. 32 Farmington Avenue.

Frederick S. Crossfield, No. 75 Pratt Street.

Marcus M. Johnson, No. 92 Pearl Street.

William D. Morgan, No. 49 Pearl Street.

John F. Axtelle, No. 635 Main Street.

George K. Welch, No. 103 Pratt Street.

Phineas H. Ingalls, No. 112 High Street.

Edward K. Root, No. 49 Pearl Street.

Luther A. Davison, No. 11 Pratt Street.

John Howard, No. 119 Trumbull Street.

Charles D. Alton, No. 86 Farmington Avenue.

Oliver C. Smith, No. 44 High Street.

Joseph E. Root, No. 67 Pearl Street.

William Porter, Jr., No. 179 Allyn Street.

Frederick T. Simpson, No. 122 High Street.

George R. Miller, No. 51 Church Street.

Charles C. Beach, No. 53 Trumbull Street.

Gideon C. Segur, No. 67 Farmington Avenue.

George C. Bailey, No. 65 Church Street.

Alva E. Abrams, No. 78 High Street.
 Charles E. Taft, No. 98 High Street.
 Thomas F. Kane, No. 517 Main Street.
 Arthur J. Wolff, No. 1 Spring Street.
 Ansel G. Cook, No. 179 Allyn Street.
 Edwin A. Down, No. 2 State Street.
 Daniel F. Sullivan, No. 64 Church Street.
 Joseph H. Cahill, No. 1145 Main Street.
 Everett J. McKnight, No. 110 High street.
 Benjamin S. Barrows, No. 78 High Street.
 Michael A. Bailey, No. 1393 Main Street.
 George N. Bell, No. 44 High Street.
 Frank L. Waite, No. 68 Pratt Street.
 Charles S. Stern, No. 904 Main Street.
 Oliver K. Isham, No. 211 High Street.
 Franklin L. Lawton, No. 295 Main Street.
 John H. Rose, No. 75 Pratt Street.
 John B. Waters, No. 103 Trumbull Street.
 Joseph B. Hall, No. 75 Pratt Street.
 Edward O. Elmer, No. 813 Park Street.
 Janet M. Weir, No. 43 May Street.
 John F. Dowling, No. 1244 Main Street.
 Phillip D. Bunce, No. 98 High Street.
 Homer L. Law, No. 100 Washington Street.
 Wilton E. Dickerman, No. 53 Trumbull Street.
 John B. Boucher, No. 25 Charter Oak Avenue.
 Levi B. Cochran, No. 43 Farmington Avenue.
 James H. Naylor, No. 207 Main Street.
 Charles P. Botsford, No. 1393 Main Street.
 James H. Standish, No. 378 Windsor Avenue.
 Michael H. Gill, No. 397 Capitol Avenue.
 John B. McCook, No. 390 Main Street.
 John W. Felty, No. 340 Windsor Avenue.
 George E. Sleeper, No. 1333 Main Street.
 Frank B. Look, No. 104 Church Street.
 Frank S. Snow, Allyn House.
 Howard F. Smith, No. 926 Main Street.
 Thomas W. Chester, No. 110 High Street.
 Joseph A. Kilbourn, No. 771 Park Street.
 Phillp P. Carlon, No. 553 Main Street.
 *William G. Craig, No. 75 Pratt Street.
 Thomas B. Enders, No. 3 Highland Street.
 Charles A. Goodrich, No. 5 Haynes Street.
 Alfred M. Rowley, No. 280 Main Street.
 Irving DeL. Blanchard, No. 241 Main Street.
 Emil G. Reinert, No. 30 Lewis Street.
 Arthur D. Hayes, No. 22 Hopkins Street.
 Herman A. Tyler, Jr., No. 641 Main Street.
 Frederick L. McKee, No. 153 Ashley Street.
 Charles W. Page, No. 82 Gillette Street.
 Edward E. Lampson, No. 53 Trumbull Street.
 William M. Weaver, No. 337 Albany Avenue.
 E. Terry Smith, No. 75 Pratt Street.
 William H. Fitzgerald, No. 904 Main Street.
 Emma J. Thompson, No. 105 Trumbull Street.
 Patrick J. Ryan, No. 318 Park Street.
 Walter R. Steiner, No. 4 Trinity Street.
 Ellen P. O'Flaherty, No. 406 Main Street.
 Thomas A. Mulcahey, No. 272 Park Street.
 Marian W. Williams, No. 772 Asylum Street.
 Allen H. Williams, No. 772 Asylum Street.
 C. Brewster Brainard, No. 2 Gordon Street.

*Exempted from taxation.

AVON :
 John L. North.
BERLIN :
 Robert E. Ensign.
 Charles A. Gillin.
East Berlin:
 George W. Lawrence.
BRISTOL :
 John J. Willson.
 William W. Horton.
 Arthur S. Brackett.
 William M. Curtiss.
CANTON—Collinsville:
 George F. Lewis.
 Ida R. Gridley-Case.
 William H. Crowley.
 Paul Plummer.
EAST HARTFORD :
 Thomas S. O'Connell.
 Walter G. Murphy.
 William B. Scranton.
Burnside:
 Franklin H. Mayberry.
EAST WINDSOR--Broad Brook:
 Howard O. Allen.
Warehouse Point:
 Michael J. Kelly.
 George E. Porter.
ENFIELD :
 Rial Strickland.
Thompsonville:
 Edward F. Parsons.
 George T. Finch.
 Henry G. Varno.
 Thomas F. Reardon.
Hazardville:
 Simon W. Houghton.
GRANBY:
 Rollin B. Chatfield.
FARMINGTON:
 Franklin Wheeler.
 Charles Carrington.
 John B. Griggs.
GLASTONBURY :
 Charles G. Rankin.
 William S. Kingsbury.
South Glastonbury:
 Henry M. Rising.
 Harry B. Rising.
MANCHESTER :
 Francis H. Whiton.
 Calvin Weldner.
South Manchester:
 William R. Tinker.
 Thomas H. Weldon.
 William S. Gillam.

NEW BRITAIN :
 *George Clary.
 Edwin B. Lyon.
 Jay S. Stone.
 Erastus P. Swasey.
 Michael J. Coholan.
 George J. Holmes.
 Lawrence M. Cremin.
 Wilbur P. Bunnell.
 Samuel W. Irving.
 Robert M. Clark.
 Hermann Strosser.
 Arvid Anderson.
 Kenneth E. Kellogg.
 Edward L. Whittemore.
 Thomas E. Reeks.
 William W. Brackett.
PLAINVILLE :
 John N. Bull.
 Theodore G. Wright.
SIMSBURY—Tariffville :
 Charles M. Wooster.
SOUTHINGTON :
 Willard G. Steadman.
 William R. Miller.
 William H. Cushing.
SOUTH WINDSOR :
 Mary S. Tudor.
 Henry A. Deane.
SUFFIELD :
 Jarvis K. Mason.
 Matthew T. Newton.
 Philo W. Street.
West Suffield:
 William E. Caldwell.
WEST HARTFORD :
 Charles O. Purinton.
WETHERSFIELD :
 Edward G. Fox.
 Arthur W. Howard.
WINDSOR :
 *Samuel A. Wilson.
 Newton S. Bell.
 Leander Z. Skinner.
 Howard F. King.
WINDSOR LOCKS:
 Joseph A. Coogan.
 William J. Coyle.
 Myron P. Robinson.

*Exempted from taxation.

NEW HAVEN COUNTY.

JOSEPH H. TOWNSEND, M.D., New Haven, President.

SAMUEL D. OTIS, M.D., Meriden, Vice President.

WILLIAM S. BARNES, M.D., New Haven, Clerk.

County Reporter—W. V. WILSON, M.D., West Haven.

Censors—C. J. FOOTE, M.D., F. G. GRAVES, M.D.,

E. W. SMITH, M.D.

Annual Meeting, third Thursday in April; semi-annual, third Thursday in October.

NEW HAVEN:

S. G. Hubbard, No. 23 College Street.

C. A. LINDSLEY, No. 15 Elm Street.

John Nicoll, No. 96 Broadway.

T. H. Bishop, No. 215 Church Street.

FRANCIS BACON, No. 32 High Street.

W. L. Bradley, No. 426 Orange Street.

A. E. Winchell, No. 60 Pearl Street.

Robert S. Ives, No. 339 Temple Street.

Evelyn L. Bissell, No. 308 Crown Street.

Arthur Ruickoldt, No. 71 Olive Street.

Walter Judson, No. 1145 Chapel Street.

Frederick Bellosa, No. 209 Orange Street.

S. D. Gilbert, No. 27 Wall Street.

J. P. C. Foster, No. 109 College Street.

W. H. Carmalt, No. 87 Elm Street.

T. H. Russell, No. 137 Elm Street.

F. H. Whittemore, No. 13 Elm Street.

C. P. Lindsley, No. 37 Elm Street.

H. Fleischner, No. 928 Grand Avenue.

M. Mailhouse, No. 151 Meadow Street.

M. C. O'Connor, No. 882 State Street.

Charles E. Park, No. 132 Olive Street.

F. E. Beckwith, No. 139 Church street.

Gustavus Elliot, No. 209 Church Street.

J. E. Stetson, No. 106 High Street.

J. F. Luhy, No. 667 Grand Avenue.

William W. Hawkes, No. 35 High Street.

Frank H. Wheeler, No. 221 Crown Street.

Herbert E. Smith, Medical College.

Benjamin L. Lambert, No. 578 Howard Avenue.

F. W. Wright, No. 48 Pearl Street.

Edward K. Roberts, No. 244 Grand Avenue.

Oliver T. Osborne, No. 252 York Street.

Lucy C. Peckham, No. 141 Green Street.

William G. Daggett, No. 189 Church Street.

Louis S. DeForest, No. 335 Orange Street.

Henry L. Swain, No. 232 York Street.

Mary B. Moody, Sherland Avenue, cor. E. Grand Avenue.

G. F. Converse, No. 1 Whalley Avenue.

J. H. Townsend, No. 39 College Street.

T. M. Cahill, No. 60 Edwards Street.

C. J. Foote, No. 26 Elm Street.

Marvin Smith, No. 73 Pearl Street.

S. J. Maher, No. 212 Orange Street.

Jay W. Seaver, No. 25 Lynwood Street.

Louis B. Bishop, No. 356 Orange Street.

H. W. Ring, No. 46 Elm Street.

W. C. Welch, No. 44 College Street.

A. O. Baribault, No. 528 Chapel Street.

Rollin McNeil, No. 149 Bradley Street.
 Edward M. McCabe, No. 224 Orange Street.
 James M. Reilly, No. 337 Cedar Street.
 Clarence E. Skinner, No. 67 Grove Street.
 N. R. Hotchkiss, No. 150 Shelton Avenue.
 Benjamin A. Cheney, No. 40 Elm Street.
 Charles A. Tuttle, No. 196 York Street.
 Harry B. Ferris, No. 118 York Street.
 Edmund S. Thomson, No. 352 Grand Avenue.
 Henry F. Klenke, No. 730 Grand Avenue.
 Leonard W. Bacon, Jr., No. 294 Elm Street.
 Paul S. Robinson, No. 164 Grand Avenue.
 Arthur N. Alling, No. 199 York Street.
 R. A. McDonnell, No. 1142 Chapel Street.
 E. P. Pitman, No. 52 Sylvan Avenue.
 James A. Moore, No. 223 Grand Avenue.
 Isaac N. Porter, No. 198 Dixwell Avenue.
 Ernest H. Arnold, No. 46 York Square.
 Robert E. Peck, No. 56 Howe Street.
 Daniel A. Jones, No. 746 Chapel Street.
 William C. Wurttemberg, No. 42 Elm Street.
 Chauncey S. Lamb, No. 776 Howard Avenue.
 Frederick N. Sperry, No. 76 Wooster Street.
 William F. Verdi, No. 172 St. John Street.
 Charles J. Bartlett, Medical College.
 Morris D. Slaterry, No. 566 Howard Avenue.
 Ward H. Sanford, No. 63 Edwards Street.
 William M. Kenna, No. 145 Olive Street.
 Ambrose K. Brennan, No. 177 Olive Street.
 Ralph S. Goodwin, Jr., No. 1179 Chapel Street.
 Leonard C. Sanford, No. 216 Crown Street.
 Willis H. Crowe, No. 106 Whalley Avenue.
 Archibald McNeil, No. 51 Livingstone Street.
 Charles H. Robbins, No. 329 Grand Avenue.
 Louis M. Gompertz, No. 233 York Street.
 Alfred G. Nadler, No. 122 Olive Street.
 T. E. Beard, Jr., No. 163 Wooster Street.
 William Sprenger, No. 366 George Street.
 Joseph B. Monahan, No. 228 Congress Avenue.
 Frederick C. Bishop, No. 1223 Chapel Street.
 James H. J. Flynn, No. 840 Howard Avenue.
 Frank A. Kirby, No. 235 Dixwell Avenue.
 William J. Sheehan, No. 619 Howard Avenue.
 John F. Sullivan, No. 304 Exchange Street.
 John S. Ely, No. 51 Trumbull Street.
 Edward F. McIntosh, No. 192 York Street.
 Nicola Mariani, No. 119 Olive Street.
 Samuel M. Hammond, No. 105 College Street.
 George I. Hemingway, No. 86 Broadway.
 Bernard E. Henrhan, No. 603 Dixwell Avenue.
 James S. Maher, No. 215 Orange Street.
 Percy D. Littlejohn, No. 564 George Street.
 A. W. Marsh, No. 1012 Whalley Avenue.
 William N. Winne, No. 1002 Whalley Avenue.
 *William S. Barnes, No. 526 Howard Avenue.
 Irwin Granniss, No. 64 Edgewood Avenue.
 Clarence L. Kilbourn, No. 202 Blatchley Avenue.
 Theodore D. Paliman, No. 494 Winthrop Avenue.
 Gilbert T. McMaster, No. 6 High Street.
 Henry H. Smith, No. 43 Elm Street.
 Julia E. Teele, No. 153 Franklin Street.
 Harry L. Welch, No. 44 College Street.

*Exempted from taxation.

Willard F. Allen, No. 108 Dixwell Avenue.
 Otto G. Ramsay, No. 251 Church Street.
 Thomas G. Sloan, No. 42 College Street.
 Thomas J. Bergin, No. 565 Howard Avenue.
 Francis P. Henry, No. 158 Olive Street.
 Thomas Y. Hynes, No. 27 College Street.

ANSONIA :

Louis E. Cooper.
 Louis H. Wilmot.
 Paul Norwood.

BRANFORD :

C. W. Gaylord.
 A. J. Tenny.

Stony Creek :

George H. Townsend.

DERBY :

F. N. Loomis.
 Elmer T. Sharpe.
 Edward A. Haire.
 Royal W. Pinney.
 Paul B. Kennedy.

EAST HAVEN :

Charles W. Holbrook.

GUILFORD :

George H. Beebe.

HAMDEN—Mt. Carmel :

George H. Joslin.

MADISON :

*D. M. Webb.
 George M. Burroughs.

MERIDEN :

*Asa H. Churchill.
 C. H. S. Davis.
 *N. Nickerson.
 A. W. Tracy.
 E. T. Bradstreet.
 J. D. Eggleston.
 Edward W. Smith.
 O. J. D. Hughes.
 Ava H. Fenn.
 E. W. Pierce.
 S. D. Otis.
 F. P. Griswold.
 E. D. Hall.
 H. W. Delesdernier.
 H. A. Meeks.
 William Galvin.
 J. W. H. La Pointe.
 Joseph A. Cooke.

MILFORD :

E. B. Heady.
 E. C. Beach.
 A. L. Tuttle.

NAUGATUCK :

Thomas M. Bull.
 Frederick Spring.
 James W. Robbins.
 William J. Delaney.
 Edwin H. Johnson.
 Frank J. Tuttle.
 John J. Carroll.

NORTH HAVEN :

R. E. Goodyear.
 Edwin H. Bidwell.

ORANGE—West Haven :

J. F. Barnett.
 William V. Wilson.
 Durell Shepard.
 Charles D. Phelps.

OXFORD :

*Lewis Barnes.

SEYMOUR :

Frank A. Benedict.
 Elias W. Davis.

WALLINGFORD :

J. D. McGaughey.
 C. H. Atwater.
 William S. Russell.
 William P. Wilson.
 Caroline North.

WATERBURY :

Edward L. Griggs.
 F. E. Castle.
 E. W. McDonald.
 Walter L. Barber.
 C. W. S. Frost.
 CHARLES S. RODMAN.
 J. M. Benedict.
 Thomas L. Axtelle.
 Carl E. Munger.
 Bernard A. O'Hara.
 John F. Hayes.
 Augustin A. Crane.
 Patrick T. O'Connor.
 John D. Freney.
 Charles A. Hamilton.
 George O. Robbins.
 Isaac P. Fiske.
 Charles H. Brown.
 Edward W. Goodenough.
 Myron L. Cooley.
 Frederick G. Graves.
 John R. Poore.
 James L. Moriarty.
 George W. Russell.
 Daniel L. Maloney.
 Thomas J. Kilmartin.
 Ernest D. Chipman.
 Charles A. Monagan.
 Henry G. Anderson.
 Henry E. Hungerford.
 Harry E. Ballard.
 Nelson A. Pomeroy.
 Thomas J. Lally.
 Patrick J. Dwyer.
 Louis J. Thibault.

Waterville :

Joseph S. Holroyd.

*Exempted from taxation.

NEW LONDON COUNTY.

FREDERICK H. DART, M.D., Niantic, President.

GEORGE R. HARRIS, M.D., Norwich, Vice President.

MORTON E. FOX, M.D., Uncasville, Clerk.

Censors—L. S. PADDOCK, M.D., WILLIAM WITTER, M.D.,

F. N. BRAMAN, M.D.

Annual Meeting, first Thursday in April; semi-annual, first Thursday in October.

COLCHESTER :

Raymond R. Gandy.

EAST LYME—Niantic :

Frederick H. Dart.

Edward C. Chipman.

GRISWOLD—Jewett City :

George H. Jennings.

GROTON :

Edmund P. Douglass.

Frank W. Hewes.

LYME :

John J. Burnham.

MONTVILLE—Uncasville :

*Morton E. Fox.

NEW LONDON :

Abiel W. Nelson.

FRANCIS N. BRAMAN.

John G. Stanton.

Charles B. Graves.

Hiram B. Thomson.

Harold H. Heyer.

Carlisle F. Ferrin.

Thomas W. Rogers.

J. Clifton Taylor.

Griswold Bragaw.

Patrick J. Cassidy.

Harry M. Lee.

Emanuel A. Henkle.

NORWICH :

Lewis S. Paddock.

William Witter.

William S. C. Perkins.

Patrick Cassidy.

LEONARD B. ALMY.

Anthony Peck.

Julian LaPierre.

Edward P. Brewer.

Newton P. Smith.

Witter K. Tingley.

William T. Browne.

George R. Harris.

Rush W. Kimball.

James J. Donahue.

Harvey E. Higgins.

Samuel Lathrop.

Charles H. Perkins.

Patrick H. Harriman.

Dennis J. Shahan.

Taftville:

George Thompson.

Alphonse Fontaine.

Yantic :

Herbert H. Howe.

STONINGTON :

Charles E. Brayton.

Norman L. Drake.

George D. Stanton.

Mystic:

Frank A. Coates.

Charles V. Butler.

Old Mystic:

*Albert T. Chapman.

William H. Gray.

VOLUNTOWN :

Warren R. Davis.

WATERFORD :

George M. Minor.

FAIRFIELD COUNTY.

WILLIAM B. COGSWELL, M.D., Stratford, President.

FREDERIC SCHAVOIR, M.D., Stamford, Vice President.

HERBERT E. SMYTH, M.D., Bridgeport, Clerk.

County Reporter—WILLIAM J. TRACEY, M.D., Norwalk.*Censors*—N. E. WORDIN, M.D., L. T. DAY, M.D.,

F. P. CLARK, M.D.

Annual Meeting, second Tuesday in April, at Bridgeport; semi-annual in October.

BRIDGEPORT:

Andrew J. Smith, No. 191 Barnum Avenue.

*Exempted from taxation.

GEORGE L. PORTER, No. 372 State Street.
 Robert Lauder, No. 310 Fairfield Avenue.
 Curtis H. Bill, No. 411 State Street.
 N. E. Wordin, No. 274 Fairfield Avenue.
 F. M. Wilson, Nos. 834-836 Myrtle Avenue.
 T. F. Martin, No. 289 Golden Hill Street.
 F. B. Downs, No. 906 Lafayette Street.
 J. W. Wright, Nos. 808-810-812 Myrtle Avenue.
 A. W. Lyons, 316 Colorado Avenue.
 *A. A. Holmes, No. 991 Broad Street.
 Charles C. Godfrey, No. 340 State Street.
 S. M. Garlick, No. 474 State Street.
 Henry Blodget, No. 477 State Street.
 J. C. Lynch, No. 408 State Street.
 C. C. Hoyt, No. 1239 State Street.
 G. W. Osborn, No. 888 Broad Street.
 J. R. Topping, No. 349 Noble Avenue.
 B. W. White, No. 390 State Street.
 Jacob May, No. 124 Courtland Street.
 F. C. Graves, No. 561 State Street.
 G. B. Cowell, No. 502 East Washington Avenue.
 George E. Ober, No. 355 East Main Street.
 B. DeF. Sheedy, No. 426 State Street.
 D. C. DeWolfe, No. 509 Fairfield Avenue.
 Henry S. Miles, No. 417 State Street.
 Charles L. Banks, No. 306 West Avenue.
 Fessenden L. Day, No. 477 State Street.
 Edward Fitzgerald, No. 526 East Washington Avenue.
 George S. Ford, No. 313 State Street.
 Frank M. Tukey, No. 429 State Street.
 William W. Gray, No. 346 West Avenue.
 James D. Gold, No. 866 Lafayette Street.
 Reuben A. Lockhart, No. 18 North Washington Avenue.
 Harriet A. Thompson, No. 695 Warren Street.
 Frederick J. Adams, No. 327 Fairfield Avenue.
 W. J. A. O'Hara, No. 361 Barnum Avenue.
 David M. Trecartin, No. 860 Park Avenue.
 Harry W. Fleck, No. 421 State Street.
 Thomas L. Ellis, No. 332 West Avenue.
 Charles R. Townsend, No. 346 State Street.
 *Herbert E. Smyth, No. 27 Courtland Street.
 Harry R. Bennett, No. 947 State Street.
 J. Murray Johnson, 385 State Street.
 Elmer F. Blank, No. 489 East Main Street.
 Charles S. Goodwin, No. 429 State Street.
 George M. DeLisser, No. 508 Noble Avenue.
 Irving L. Nettleton, No. 385 Noble Avenue.
 Richard W. Ivers, No. 313 State Street.
 Edwards M. Smith, 340 State Street.
 Frank L. Smith, No. 2178 Main Street.
 David B. Wason, No. 311 State Street.
 Thomas F. Stanton, No. 374 State Street.

BETHEL :

A. E. Barber.
 George DeWitt Wight.
 Homer F. Moore.
 Charles R. Hart.

BROOKFIELD :

Junius F. Smith.

DANBURY :

F. P. Clark.
 E. A. Stratton.
 W. S. Watson.
 D. Chester Brown.
 H. F. Brownlee.
 Nathaniel Selleck.

*Exempted from taxation.

- George E. Lemmer.
 *Charles F. Craig, U. S. A.
 John A. Wade.
 William F. Gordon.
 W. H. Kiernan.
 William T. Bronson.
- DARIEN :
 George H. Noxon.
- Noroton :
 M. W. Robinson.
- FAIRFIELD :
 W. H. Donaldson.
- Greenfield Hill:
 M. V. B. Dunham.
- Southport:
 Joseph L. Hetzel.
 Robert E. Perdue.
- GREENWICH :
 Frank Terry Brooks.
 Fritz C. Hyde.
- Cos Cob:
 Kirk W. Holmes.
- HUNTINGTON—Shelton :
 GOULD A. SHELTON,
 William S. Randall.
 Francis I. Nettleton.
- MONROE—Stepney :
 SETH HILL.
- NEW CANAAN :
 Clarence H. Scoville.
- NEWTOWN—Sandy Hook :
 James W. Gordon.
- NORWALK :
 James G. Gregory.
 R. L. Higgins.
 S. H. Huntington.
 William J. Tracey.
- South Norwalk:
 A. N. Clark.
 C. G. Bohannon.
 Lauren M. Allen.
 Henry C. Sherer.
- Jean Dumortier.
 Wright B. Bean.
- East Norwalk:
 Frederick B. Baker.
- REDDING :
 Ernest H. Smith.
- RIDGEFIELD:
 Russell W. Lowe.
 Howard P. Mansfield.
- STAMFORD:
 A. M. Hurlbut.
 Samuel Pierson.
 A. N. Phillips.
 P. P. Van Vleet.
 F. Schavoir.
 Wm. A. R. Treadway.
 F. J. Rogers.
 Rosavelle G. Phillp.
 James A. Meek.
 George Sherrill.
 Watson E. Rice.
 Frank M. Tiffany.
 Daniel A. Hanrahan.
 Myre J. Brooks.
 Leonard W. Munson.
 George R. Hertzberg.
- STRATFORD :
 W. B. Cogswell.
 G. F. Lewis.
- WESTON—LYON'S PLAINS :
 F. Gorham.
- WESTPORT :
 George B. Bouton.
 F. Powers.
 Loren T. Day.
 F. D. Ruland.
 *L. H. Wheeler. U. S. A.
 J. M. Nolan.
- WILTON :
 A. B. Gorham.
- South Wilton:
 Edward Everett Smith.

WINDHAM COUNTY.

HENRY R. LOWE, M.D., Putnam, President.

AMOS AVERY, M.D., Hampton, Vice President.

JAMES L. GARDNER, M.D., Central Village, Clerk.

County Reporter—W. W. ADAMS, M.D., Moosup.*Censors*—RIENZI ROBINSON, M.D., OMAR LARUE, M.D.,

F. E. GUILD, M.D.

BROOKLYN—Wauregan:

*A. H. Tanner.

CHAPLIN :

Charles M. Knight.

•Exempted from taxation.

DANIELSON :
 RIENZI ROBINSON.
 W. H. Judson.
 C. J. Le Clair.
 Frank H. Coops.
 James R. Shannon.

HAMPTON :
 Amos Avery.

KILLINGLY :
 Ashael E. Darling.
 Henry L. Hammond.

East Killingly :
 Charles E. Hill.

MOOSUP :
 Charles N. Allen.
 W. W. Adams.
 Frederick E. Rainville.

Central Village.
 *James L. Gardner.

PLAINFIELD :
 Arthur A. Chase.

POMFRET :
 S. B. Overlock.

PUTNAM :
 John B. Kent.

F. A. Morrell.
 Omar LaRue.
 Lewis O. Morasse.
 Warren W. Foster.
 Henry R. Lowe.

THOMPSON :
 *LOWELL HOLBROOK.
 Robert C. Paine.

North Grosvenor Dale :
 J. F. McIntosh.

WINDHAM :
 F. E. Guld.

WILLIMANTIC :
 Frederick Rogers.
 T. MORTON HILLS.
 C. J. Fox.
 T. R. Parker.
 John Weldon.
 R. C. White.
 George W. May.
 Laura H. Hills.
 Joseph A. Girouard.

WOODSTOCK—East Woodstock :
 Charles C. Gildersleeve.

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LITCHFIELD COUNTY.

JEROME S. BISSELL, M.D., Torrington, President.
 GEORGE H. McKNIGHT, M.D., Lakeville, Vice President.
 ALBERT E. COBB, M.D., Falls Village, Clerk.
County Reporter—WILLIAM L. HULBERT, M.D., Winsted.
Censors—W. S. RICHARDS, M.D., J. C. KENDALL, M.D.,
 I. L. HAMANT, M.D.

Annual Meeting, fourth Tuesday in April; semi-annual, second Tuesday in October.

BETHLEHEM :
 Etta May Hadley-Judd.

CANAAN—Falls Village :
 *Albert E. Cobb.

CORNWALL—Cornwall Bridge :
 Charles A. Ryder.

GOSHEN :
 J. H. North.
 Noah S. Wadhams.

KENT :
 W. M. Barnum.

LITCHFIELD :
 J. T. Sedgwick.
 John L. Buel.
 W. S. MacLaren.
 Charles N. Warner.
 Charles I. Page.

NEW HARTFORD :
 Josiah Swett.

NEW MILFORD :
 George E. Staub.

NORFOLK :
 John C. Kendall.
 I. L. Hamant.
 Lucius D. Bulkley.
 Frederick S. Dennis.

NORTH CANAAN—Canaan :
 Charles W. Camp.
 Frank H. Lee.
 William T. Owens.
 John G. Adam.

PLYMOUTH—Terryville :
 W. W. Wellington.

*Exempted from taxation.

SALISBURY :

Phllp H. Sellew.

Lakeville:

William Bissell.
George H. Knight.
William B. Bissell.

SHARON :

Clarence W. Bassett.

THOMASTON :

RALPH S. GOODWIN.
George D. Ferguson.
T. G. O'Connell.
Robert Hazen.

TOBRINGTON :

William L. Platt.
Thatcher S. Hanchett.
Ellas Pratt.
J. W. Johnson.
Jerome S. Bissell.
James D. Hayes.
Abram J. Barker.
Charles H. Carlin.

*Sanford H. Wadhams.

H. D. Moore.
William J. Hogan.

WASHINGTON :

*ORLANDO BROWN.
William J. Ford.

WATERTOWN :

Ernest K. Loveland.

WINCHESTER—Winsted:

Edward L. Pratt.
William S. Hulbert.
Salmon J. Howd.
David D. Reidy.

West Winsted:

Edward H. Welch.
William S. Richards.

WOODBURY :

David R. Rodger.

Hotchkissville :

Egbert L. Smith.

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MIDDLESEX COUNTY.

CHARLES H. HUBBARD, M.D., Essex, President.

CHARLES E. STANLEY, M.D., Middletown, Vice President.

JOHN E. LOVELAND, M.D., Middletown, Clerk.

County Reporter—F. SUMNER SMITH, M.D., Chester.*Censors*—S. W. TURNER, M.D., GEORGE W. BURKE, M.D.,

M. C. HAZEN, M.D.

Annual Meeting, second Thursday in April; semi-annual, second
Thursday in October.

CHATHAM—Middle Haddam:

George N. Lawson.

East Hampton:

Albert Field.

CHESTER :

*Sylvester W. Turner.
Fred. Sumner Smith.

CLINTON :

Herbert S. Reynolds.

CROMWELL :

Frank K. Hallock.
Charles E. Bush.
Clara M. DeHart.

DURHAM :

Earl Mathewson.

EAST HADDAM :

M. W. Plumstead.

ESSEX :

Charles H. Hubbard.

HADDAM :

Miner C. Hazen.

Higganum :

Russel Hulbert.

KILLINGWORTH :

Edward P. Nichols.

MIDDLETOWN :

*George W. Burke.
FRANCIS D. EDGERTON.
Wm. E. Fisher.
Charles E. Stanley.
James M. Keniston.
Henry S. Noble.
Michael D. Murphy.
John E. Bailey.
Arthur J. Campbell.
Arthur B. Coleburn.
J. Francis Calef.
John E. Loveland.
Kate C. Mead.
Lewis Maitland.
Daniel A. Nolan.
Roger C. Downey.
Allen Ross Defendorf.

*Exempted from taxation.

John H. Mountain.
Charles B. Young.
Jessie W. Fisher.
James T. Mitchell.
George Streitt.

OLD SAYBROOK :

JOHN H. GRANNISS.
William D. Spencer.
Calista V. Luther.

PORTLAND :

Cushman A. Sears.
Frank E. Potter.
James Murphy.

SAYBROOK — Deep River :

*Edwin Bidwell.
Howard T. French.
Arthur Pratt

Westbrook :

Thomas B. Bloomfield.

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TOLLAND COUNTY.

EDWIN T. DAVIS, M.D., Ellington, President

WILLIAM C. HAVEN, M.D., Coventry, Vice President.

ERNEST O. WINSHIP, Rockville, Clerk.

County Reporter — C. B. NEWTON, M.D., Stafford Springs.

Censors — WILLIAM C. HAVEN, M.D., A. R. GOODRICH, M.D.,

E. O. WINSHIP, M.D.

Annual Meeting, third Tuesday in April; semi-annual, third Tuesday in October.

BOLTON

*CHAS. F. SUMNER.

COVENTRY :

William C. Haven.

South Coventry:

W. L. Higgins.

ELLINGTON :

E. T. Davis.

MANSFIELD — Mansfield Depot :

F. E. Johnson.

ROCKVILLE :

Frederick Gilnack.

T. F. Rockwell.

E. P. Flint.

T. F. O'Laughlin.

*Ernest O. Winship.

SOMERS :

Alonzo L. Hurd.

STAFFORD—Stafford Springs :

C. B. NEWTON.

F. L. Smith.

VERNON :

*A. R. GOODRICH.

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*Exempted from taxation.

ALPHABETICAL LIST

OF THE

MEMBERS OF THE CONNECTICUT MEDICAL SOCIETY,

With Date and Place of Graduation, and Post-Office Address.

In preparing this list the Secretary has followed the list in the Proceedings of 1892, made with great care and labor by Dr. J. B. Lewis for the Centennial year. It may be relied upon as being correct.

Name.	Medical Graduation.	P. O. Address.
Abrams, Alva Elnathan,	Albany, '81,	Hartford.
Adam John Geikie,	Trinity Col., 1900,	No. Canaan.
Adams, Frederick Joseph,	Univ. N. Y., '95,	Bridgeport.
Adams, William Waldo,	Bellevue, '91,	Moosup.
Allen, Charles Noah,	Univ. Vt., '81,	Moosup.
Allen, Howard Oliver,	Univ. N. Y., '79,	Broad Brook.
Allen, Lauren Melville,	P. & S., N. Y., '80,	So. Norwalk.
Allen, Millard Fillmore,	Med. Chi., Phil., '95,	New Haven.
Ailing, Arthur Nathaniel, B.A.,		
Yale, '86,	P. & S., N. Y., '91,	New Haven.
Almy, Leonard Ballou, B. A.,		
Yale, '73,	Bellevue, '76,	Norwich.
Alton, Charles De Lancey,	Bellevue, '75,	Hartford.
Anderson, Arvid,	Univ. Mich., '93,	New Britain.
Anderson, Henry Gray,	P. & S., N. Y., '89,	Waterbury.
Arnold, Ernest Hermann,	Yale, '94,	New Haven.
Atwater, Caleb Huntington,	P. & S., N. Y., '71,	Wallingford.
Avery, Amos,	L. I. Hosp. Coll., '99,	Hampton.
Axtelle, John Franklin,	L. I. Hosp. Coll., '71,	Hartford.
Axtelle, Thomas Lincoln,	Bellevue, '81,	Waterbury.
Bacon, Francis,	Yale, '53,	New Haven.
Bacon, Leonard Woolsey, Jr.,	Yale, '92,	New Haven.
Bacon, William Turner,		
B.A., Yale, '68, M.A., '71,	Univ. N. Y., '71,	Hartford.
Bailey, George Cornelius,	Univ. N. Y., '86,	Hartford.
Bailey, John Elmore,	P. & S., N. Y., '85,	Middletown.
Bailey, Michael Angelo,	P. & S., Balt., '93,	Hartford.
Ballard, Harry Emory,	Univ. Vt., '93,	Waterbury.
Baker, Frederick Birdseye,	Univ. Md., '88,	E. Norwalk.
Banks, Charles Lincoln,	P. & S., N. Y., '91,	Bridgeport.
Barber, Alvin Elizur,	Berkshire, '54,	Bethel.
Barber, Walter Lewis,	Bellevue, '73,	Waterbury.
Baribault, Arthur Octave,	Vict. Med. Col., '89,	New Haven.
Barnes, Lewis, B.A., M.A.,		
Yale, '47,	Buffalo Univ., '50,	Oxford.
Barnes, William Samuel, Ph.B.,		
Yale, '95,	Yale, '97,	New Haven.
Barnett, John Frederick,	Yale, '69,	West Haven.
Barnum, Walter Milo,	P. & S., N. Y., '83,	Kent.

Name.	Medical Graduation.	P. O. Address.
Barrows, Benj. Safford, Ph.B., Yale, '83.	Univ. N. Y., '87.	Hartford.
Bartlett, Charles Joseph, B.A., Yale, '92; M.A., Yale, '94.	Yale, '95	New Haven.
Bassett, Clarence Wheeler,	Univ. N. Y., '82,	Sharon.
Beach, Charles Coffing,	P. & S., N. Y., '82,	Hartford.
Beach, Edward Charles,	Yale, '88,	Milford.
Bean, Wright Butler,	P. & S., N. Y., '95,	South Norwalk.
Beard, Theodore Edward, Jr.,	Yale, '97,	New Haven.
Beckwith, Frank Edwin, M.A., Yale, '81.	P. & S., N. Y., '71,	New Haven.
Beebe, George Hoxie,	Univ. N. Y., '78,	Gunford.
Bell, George Newton,	Yale, '92,	Hartford.
Bell, Newton Stephen,	Univ. Vt., '64,	Windsor.
Bellosa, Frederick,	Yale, '72,	New Haven.
Benedict, Frank Allen,	P. & S., N. Y., '87,	Scymour.
Benedict, John Mitchell,	Univ. N. Y., '82,	Waterbury.
Bennett, Harry Raymond,	Univ. Vt., '96,	Bridgeport.
Bergin, Thomas Joseph, A.B., Yale '96,	Yale, 1899.	New Haven.
Bidwell, Edwin,	Yale, '47,	Deep River.
Bidwell, Edwin Hamilton,	Dartmouth, '94,	North Haven.
Bill, Curtis Harvey,	Univ. N. Y., '59,	Bridgeport.
Bishop, Frederick Courtney, B.A., Yale, '92,	Yale, '95,	New Haven.
Bishop, Louis Bennett, B.A., Yale, '86,	Yale, '88,	New Haven.
Bishop, Timothy Huggins,	Yale, '60,	New Haven.
Bissell, Evelyn Lyman,	Yale, '60,	New Haven.
Bissell, Jerome Samuel,	Yale, '94,	Torrington.
Bissell, William, B.A., Yale, '53,	Yale, '56,	Lakeville.
Bissell, William Bascom, A.B., Yale, '88,	P. & S., N. Y., '92,	Lakeville.
Blanchard, Irving DeLoss,	Yale, '97,	Hartford.
Blank, Elmer Francis,	Starling, '97,	Bridgeport.
Blodget, Henry, A.B., Yale, '75,	Bellevue, '81,	Bridgeport.
Bloomfield, Thomas Blanch,	P. & S., N. Y., '76,	Westbrook.
Bohannon, Charles Gordon,	Univ. N. Y., '78,	South Norwalk.
Botsford, Charles Porter,	Yale, '94,	Hartford.
Boucher, John Bernard,	P. & S., Balt., '94,	Hartford.
Bouton, George Beriah,	Y., '56; N. Y. M., '56,	Westport.
Brackett, Arthur Stone,	Jefferson, '95,	Bristol.
Brackett, William Walker,	Jefferson, '96,	New Britain.
Bradley, William Lockwood, B.A., Yale, '60,	Yale, '64,	New Haven.
Bradstreet, Edward Thomas, B.A., Yale, '74,	P. & S., N. Y., '77,	Meriden.
Bragaw, Griswold,	Bellevue, '97,	New London.
Brainard, Clifford Brewster, Ph. B., Yale, 91.	Yale, '98,	Hartford.
Braman, Francis Nelson,	Bellevue, '66,	New London.
Brayton, Charles Erskine,	P. & S., N. Y., '73,	Stonington.
Brennan, Ambrose Kirk,	Yale, '93,	New Haven.
Brewer, Edward Pliny, Ph.D.,	Dartmouth, '79,	Norwich.
Bromley, Daniel Tyler,	Yale, '67,	Hartford.
Bronson, William Thaddeus,	Univ. N. Y., '98,	Danbury.
Brooks, Frank Terry, B.A., Yale, '90,	P. & S., '93,	Greenwich.
Brooks, Myre Joel,	Yale, '67,	Stamford.
Brown, Charles Henry,	Univ. N. Y., '93,	Waterbury.
Brown, David Chester,	Yale, '84,	Danbury.
Brown, Orlando,	Yale, '51,	Washington

Name.	Medical Graduation.	P. O. Address.
Browne, William Tyler, Ph.B., Yale, '78,	Harvard, '82,	Norwich.
Brownlee, Harris Fenton,	P. & S., N. Y., '83,	Danbury.
Buel, John Laidlaw,	P. & S., N. Y., '88,	Litchfield.
Bulkley, Lucius Duncan, M.A., A.B., Yale, '66,	P. & S., N. Y., '69,	Norfolk.
Bull, John Norris,	P. & S., N. Y., '73,	Plainville.
Bull, Thomas Marcus,	P. & S., N. Y., '87,	Naugatuck.
Bunce, Philip Dibble, A.B., Yale, '88,	P. & S., N. Y., '91,	Hartford.
Bunnell, Wilbur Pitkin,	Univ. N. Y., '62,	New Britain.
Burke, George Whiting, B.A., '39, M.A., '42, Wesleyan,	Yale, '43,	Middletown.
Burnham, John Lewis,	Yale, '99,	Lyme.
Burrroughs, George McClellan,	Balt. Med. Col., '00,	Madison.
Bush, Charles Ellsworth,	Yale, '94,	Cromwell.
Butler, Charles Voorhes,	Univ. N. Y., '84,	Mystic.
Cahill, Joseph Henry,	Balt. Univ., '92,	Hartford.
Cahill, Thomas Matthew,	Yale, '88,	New Haven.
Caldwell, William Elry,	Balt. Med. Col., '95,	West Suffield.
Calef, Jeremiah Francis, B.A., Wesleyan, '77,	Yale, '80,	Middletown.
Camp, Charles Welford,	Univ. N. Y., '74,	Canaan.
Campbell, Arthur Joseph,	P. & S., Balt., '85,	Middletown.
Carlin, Charles Henry,	Univ. Mich., '96,	Torrington.
Carlon, Philip Patrick,	Univ. N. Y., '90,	Hartford.
Carmalt, William Henry, M.A., Yale, '81,	P. & S., N. Y., '61,	New Haven.
Carrington, Charles,	P. & S., N. Y., '60,	Farmington.
Carroll, John James,	Dartmouth, '97,	Naugatuck.
Case, Ida R. Gridley, B.A., Wes. Univ., '86; M.A., Wes., '88,	P. & S., Boston, '89,	Collinsville.
Cassidy, Patrick,	Univ. Vt., '65,	Norwich.
Cassidy, Patrick John, B.A., Yale, '94,	Johns Hopkins, '98,	New London.
Castle, Frank Edwin,	Yale, '70,	Waterbury.
Chapman, Albert Taylor,	P. & S., N. Y., '64,	Old Mystic.
Chase, Arthur Alverdo,	Harvard, '01,	Plainfield.
Chatfield, Rollin Blackman,	Yale, '93,	Granby.
Cheney, Benjamin Austin, B.A., Yale, '88,	Yale, 90,	New Haven.
Chester, Thomas Weston, B.A., Rutgers, '92, M.A., '95,	P. & S., N. Y., '95,	Hartford.
Chipman, Edward Clifford,	P. & S., N. Y., '91,	Niantic.
Chipman, Ernest Dwight,	Yale, '97,	Waterbury.
Churchill, Asa Hopkins,	Yale, '57,	Meriden.
Clark, Arthur Norman,	P. & S., N. Y., '83,	South Norwalk.
Clark, Franklin Pierce,	P. & S., N. Y., '76,	Danbury.
Clark, Robert Moses,	Univ. Pa., '91,	New Britain.
Clary, George, A.B., '52, Dart. mouth,	Yale, '57,	New Britain.
Coates, Franklin Avery, A.B., '72; A.M., '75,	P. & S., N. Y., '75,	Mystic.
Cobb, Alfred Edward,	Yale, '98,	Falls Village.
Cochran, Levi Bennett,	Univ. Pa., '93,	Hartford.
Cogswell, William Badger,	Bellevue, '81,	Stratford.
Coholan, Michael James,	Univ. N. Y., '65,	New Britain.
Coleburn, Arthur Burr,	P. & S., N. Y., '90,	Middletown.
Converse, George Frederick,	Yale, '87,	New Haven.
Coogan, Joseph Albert,	Bellevue, '76,	Windsor Locks.
Cook, Ansel Granville,	P. & S., N. Y., '87,	Hartford.
Cooke, Joseph Anthony,	Yale, '97,	Meriden.

Name.	Medical Graduation.	P. O. Address.
Cooley, Myron Lynus,	Buffalo, '86,	Waterbury.
Cooper, Louis Edward,		
Ph.B., Yale, '84,	Yale, '86,	Ansonia.
Coops, Frank Harvey,	P. & S., Balt., '96,	Danlison.
Cowell, George B.,	P. & S., N. Y., '88,	Bridgeport.
Coyle, William Joseph,	Buffalo Med. Col., '85,	Windsor Locks.
Craig, Charles Franklin,	Yale, '94,	Danbury.
Craig, William Gibson,	Jefferson, '92,	Hartford.
Crane, Augustin Averill,		
B.A., Yale, '85,	Yale, '87,	Waterbury.
Crary, David,	Yale, '69,	Hartford.
Crossfield, Frederick Solon,	Bellevue, '78,	Hartford.
Crothers, Thomas Davison,	Albany, '65,	Hartford.
Crowe, Willis Hanford,	P. & S., N. Y., '95,	New Haven.
Crowley, William Holmes,	Buffalo Med. Col., '90,	Collinsville.
Curtiss, William Martin Stanley,	Balt. Univ. S. M., '93,	Bristol.
Cushing, William Henry,	Bellevue, '92,	Southington.
Daggett, William Gibbons,		
B. A., Yale, '80,	Univ. P., '84,	New Haven.
Darling, Ashael Ebenezer,	Harvard, '72,	Killingly.
Dart, Frederick Howard,	P. & S., N. Y., '84,	Niantic.
Davis, Charles Henry Stanley,	Univ. N. Y., '66,	Meriden.
Davis, Edwin Taylor,	Univ. Vt., '88,	Ellington.
Davis, Elias Wyman,		
B.A., Yale, '80,	Yale, '92,	Seymour.
Davis, Gustav Pierpont,		
B. A., Yale, '66,	P. & S., N. Y., '69,	Hartford.
Davis, Warren Russell,	Univ. Vt., '82,	Voluntown.
Davison, Luther Augustus,	Univ. N. Y., '82,	Hartford.
Day, Fessenden Lorenzo, B.A.,	Bellevue, '93,	Bridgeport.
Day, Loren True,	Yale, '80,	Westport.
Deane, Henry Augustus,	Dartmouth, '68,	South Windsor.
Defendorf, Allen Ross,		
B.A., Yale, '94,	Yale, '96,	Middletown.
DeForest, Louis Shepard,		
B.A., Yale, '79; M.A.,		
Yale, '91,	Univ. Jena., '85,	New Haven.
DeHart, Clara Madana,	Woman's Med. Coll.,	
	N. Y. Inf., '94,	Cromwell.
Delaney, William Joseph,	McGill Univ., '87,	Naugatuck.
Delesdernier, Horace William,	Univ. Vt., '85,	Meriden.
DeLisser, Glenwood Medcalf,	Wash. Univ., '97,	Bridgeport.
Dennis, Frederic Shepard, B.A.,		
Yale, '72; M.R.C.S.,	Bellevue, '74,	Norfolk.
DeWolfe, Daniel Charles,	Univ. Vt., '86,	Bridgeport.
Dickerman, Wilton Elias, B.A.,		
Amherst, '90,	Yale, '93,	Hartford.
Donahue, James Joseph,	P. & S., Balt., '96,	Norwich.
Donaldson, William Henry,	Univ. N. Y., '81,	Fairfield.
Douglass, Edmund Peaslee,	Univ. N. Y., '89,	Groton.
Dowling, John Francis,	L. I. Hosp. Coll., '90,	Hartford.
Down, Edwin Augustus,	P. & S., N. Y., '87,	Hartford.
Downey, Roger Charles,	Univ. Vt., '92,	Middletown.
Downs, Frederick Bradley,	Univ. N. Y., '78,	Bridgeport.
Drake, Norman Lucie,	Univ. N. Y., '91,	Stonington.
Dumortier, Jean,	Univ. Ghent, Belg., '89,	South Norwalk.
Dunham, Martin Van Buren,	Harvard, '67,	Greenfield Hill.
Dwyer, Patrick James,		
A.B., Fordham, '94,	Univ., N. Y., '97,	Waterbury.

Name.	Medical Graduation.	P. O. Address.
Edgerton, Francis Daniels, A.M., '61,	Univ. Vt., '61, P. & S., N. Y., '64,	Middletown.
Eggleston, Jeremiah Dewey,	P. & S., N. Y., '79,	Meriden.
Elliot, Gustavus, B. A., Yale, '77; A.M., Yale, '82,	P. & S., N. Y., '80,	New Haven.
Ellis, Thomas Long, B.A., Yale, '94,	Yale, '96,	Bridgeport.
Elmer, Oliver Edward,	P. & S., Balt., '94,	Hartford.
Ely, John Slade, Ph.B., Yale, '81, M.A., Columbia, '97,	P. & S., N. Y., '86, P. & S., N. Y., '91,	New Haven.
Enders, Thomas Burnham,	Albany, '57,	Hartford.
Ensign, Robert Eleazer,		Berlin.
Felty, John Wellington, A.M., Emporia, Kan., '97,	Jefferson, '84,	Hartford.
Fenn, Ava Hamlin,	P. & S., Balt., '86,	Meriden.
Ferguson, George Dean,	Univ. N. Y., '79,	Thomaston.
Ferrin, Carlisle Franklin, B.A., Univ. Vt., '91,	P. & S., N. Y., '95,	New London.
Ferris, Harry Burr, B. A., Yale, '87,	Yale, '90,	New Haven.
Field, Albert,	L. I. Coll. Hosp., '67,	E. Hampton.
Finch, George Terwilliger, Hobart, B.A., '75, M.A., '78,	Bellevue, '77,	Thompsonville.
Fisher, Jessie Weston,	Woman's Med. Col., of Penna., '93,	Middletown.
Fisher, William Edwin,	Univ. Pa., '76,	Middletown.
Fiske, Isaac Parsons,	Univ. N. Y., '75,	Waterbury.
Fitzgerald, Edward,	P. & S., Balt., '84,	Bridgeport.
Fitzgerald, William,	Univ. Vt., '95,	Hartford.
Fleck, Harry Willard,	Jefferson, '96,	Bridgeport.
Fleischner, Henry,	Yale, '78,	New Haven.
Flint, Eli Percival,	Yale, '79,	Rockville.
Flynn, James Henry Joseph,	Yale, '95,	New Haven.
Fontaine, Alphonse,	Laval Uni., '92,	Norwich.
Foote, Charles Jenkins, B.A., Yale, '83,	Harvard, '87,	New Haven.
Ford, George Skiff,	Bellevue, '93,	Bridgeport.
Ford, William J.,	Univ. N. Y., '84,	Washington.
Foster, John Pierpont Codring- ton, B.A., Yale, '69,	Yale, '75,	New Haven.
Foster, Warren Woodend,	Harvard, '82,	Wash'ton, D. C.
Fox, Charles James,	Univ. N. Y., '76,	Willimantic.
Fox, Edward Gager,	Univ. N. Y., '83,	Wethersfield.
Fox, Morton Earl,	L. I. Hosp., Coll., '93,	Uncasville.
French, Howard Truman,	P. & S., N. Y., '91,	Deep River.
Frenay, John Daniel,	L. I. Coll. Hosp., '93,	Waterbury.
Froelich, Charles Edward, M.A., Copenhagen, '64,	Copenhagen, '70;	Hartford.
Frost, Charles Warren Selah,	P. & S., N. Y., '80,	Waterbury.
Fuller, Horace Smith, Amherst, B.A., '58; A.M., '61,	P. & S., N. Y., '65,	Hartford.
Galvin, William,	Univ. Vt., '92,	Meriden.
Gandy, Raymond Reeves,	Univ. Pa., '99,	Colchester
Gardner, James Lester,	Univ. Vt., '81,	Central Village.
Garlick, Samuel Middleton, B.A., Dart., '74,	Harvard, '77,	Bridgeport.
Gaylord, Charles Woodward, B.A., Yale, '70,	Yale, '72,	Branford.
Gilbert, Samuel Dutton, B.A., Yale, '69,	Yale, '71,	New Haven.

Name.	Medical Graduation.	P. O. Address.
Gildersleeve, Charles Childs,	Yale, '96,	E. Woodstock.
Gilliam, William S.,	Univ. Pa., '88,	So. Manchester
Gill, Michael Henry,	Yale, '96,	Hartford.
Gillin, Charles Adclbert,	Univ. N. Y., '83,	Berlin.
Gilnack, Frederick,	P. & S., N. Y., '67,	Rockville.
Girouard, Joseph Arthur,	Balt. Med. Coll., '99,	Willimantic.
Gladwin, Ellen Hammond,	W. Med., N. Y., '72,	Hartford.
Godfrey, Charles Cartlidge,	Dartmouth, '83,	Bridgeport.
Gold, James Douglass, Ph.B.,		
Yale, '88,	P. & S., '91,	Bridgeport.
Gompertz, Louis Michael,	Yale, '96,	New Haven.
Goodenough, Edward Winches-		
ter, B.A., Yale, '87,	Yale, '93,	Waterbury.
Goodrich, Alfred Russell,	Berkshire, '46,	Vernon.
Goodrich, Charles Augustus,		
B.S., Mass. Ag. Col., '93,	P. & S., N. Y., '96,	Hartford.
Goodwin, Charles Sumner,	Univ. N. Y., '96,	Bridgeport.
Goodwin, Ralph Schuyler,	P. & S., N. Y., '66,	Thomaston.
Goodwin, Ralph Schuyler, Jr.,		
Ph.B., Yale, '90,	P. & S., N. Y., '93,	New Haven.
Goodyear, Robert Beardsley,	Yale, '68,	North Haven.
Gordon, James William,	Bellevue, '88,	Sandy Hook.
Gordon, William Francis,	L. I. Hosp. Coll., '96,	Danbury.
Gorham, Andrew Bennett,	Yale, '79,	Wilton.
Gorham, Frank,	Yale, '76,	Lyon's Plain.
Grannlss, John Henry,	Yale, '68,	Old Saybrook.
Granniss, Irwin,	Yale, '96,	New Haven.
Graves, Charles Burr, B.A.,		
Yale, '82,	Harvard, '86,	New London.
Graves, Frederick Chauncey,	Univ. N. Y., '88,	Bridgeport.
Graves, Frederick George,	Yale, '92,	Waterbury.
Gray, William Henry,	P. & S., N. Y., '89,	Old Mystic.
Gray, William Wetmore, B.S.,		
Dickinson, '85,	Bellevue, '90,	Bridgeport.
Gregory, James Glynn, B.A.,		
Yale, '65,	P. & S., N. Y., '68,	Norwalk.
Griggs, Edward Luther,	L. I. Hosp. Coll., '64,	Waterbury.
Griggs, John Bagg,	Yale, '97,	Farmington.
Griswold, Frederick Pratt,	P. & S., N. Y., '76,	Meriden.
Gulld, Frank Eugene,	L. I. Hosp. Coll., '85,	Windham.
Hadley-Judd, Etta May,	Women's Med. Coll.,	
	Phila., '95,	Bethlehem.
Haire, Edward Aloysius,	Univ. Balt., '98,	Derby.
Hall, Edward Dormanlo,	Harvard, '73,	Meriden.
Hall, Joseph Barnard,	Yale, '92,	Hartford.
Hallock, Frank Kirkwood,		
A.B., A.M., '82,	P. & S., N. Y., '85,	Cromwell.
Hamant, Irving Louis,	L. I. Hosp. Coll., '90,	Norfolk.
Hamilton, Charles Allen,	Univ. Vt., '86,	Waterbury.
Hammond, Henry Louis, Ph.B.,		
'64,	Harvard, '66,	Killingly.
Hammond, Samuel Mowbray,		
Ph.B., Yale, '93,	Yale, '96,	New Haven.
Hanchett, Thatcher Swift,	Bellevue, '64,	Torrington.
Hanrahan, Daniel Aloysius,	Bellevue, '95,	Stamford.
Harriman, Patrick Henry,	Univ. N. Y., '84,	Norwich.
Harris, George Robert,	P. & S., N. Y., '85,	Norwich.
Hart, Charles Remington,	P. & S., N. Y., '59,	Bethel.
Haven, William Chadbourne,	Univ. N. Y., '77,	Coventry.
Hawkes, Wm. Whitney, B.A.,		
Yale, '79,	Yale, '81,	New Haven.
Hayes, Arthur Douglass,	Dartmouth, '96,	Hartford.

Name.	Medical Graduation.	P. O. Address.
Hayes, James Dermot, B.S., Man. Coll., N. Y.,	Univ. N. Y., '94,	Torrington.
Hayes, John Frances,	Univ. N. Y., '79,	Waterbury.
Hazen, Miner Comstock,	Univ. Mich., '55,	Haddam.
Hazen, Robert,	Univ. Vt., '98,	Thomaston.
Heady, Elias Buel,	Yale, '72,	Milford.
Hemingway, George Isaac,	Univ. Vt., '97,	New Haven.
Henkle, Emanuel Alexander,	Cornell, '99,	New London.
Henrahan, Bernard Eliot,	Jefferson, '97,	New Haven.
Henry, Francis Patrick,	Yale, '98,	New Haven.
Hertzberg, George Robert,	Dartmouth, '99,	Stamford.
Hetzel, Joseph Linn,	Bellevue, '91,	Southport.
Hewes, Frank William,	Univ. Vt., '94,	Groton.
Heyer, Harold Hankinson,	Univ. N. Y., '87,	New London.
Higgins, Harry Eugene,	Univ. N. Y., '96,	Norwich.
Higgins, Royal Lacey,	Bellevue, '67,	Norwalk.
Higgins, William Lincoln,	Univ. N. Y., '90,	So. Coventry.
Hill, Charles Edwin, B.A., Yale, '76,	Harvard, '79,	E. Killingly.
Hill, Seth,	Yale, '66,	Stepney.
Hills, Laura Heath,	W. Med. Coll., Pa.,	Willimantic.
Hills, Thomas Morton,	Yale, '63,	Willimantic.
Hogan, William John,	Yale, '98,	Torrington.
Holbrook, Charles Werden, M.A., Amherst, '93,	Yale, '96,	East Haven.
Holbrook, Lowell,	Univ. N. Y., '49,	Thompson.
Holmes, Arthur Almond,	Harvard, '65,	Bridgeport.
Holmes, George James,	Albany, '82,	New Britain.
Holmes, Kirk Wilder,	L. I. Hosp. Coll., '95,	Cos Cob.
Holroyd, Joseph Scripture,	P. & S., N. Y., '95,	Waterville.
Horton, William Wickham,	Univ. N. Y., '79,	Bristol.
Hotchkiss, Norton Royce,	Univ. Md., '91,	New Haven.
Houghton, Simon Willard,	Bellevue, '79,	Hazardville.
Howard, Arthur Wayland,	Univ. N. Y., '90,	Wethersfield.
Howard, John,	Dartmouth, '81,	Hartford.
Howd, Salmon Jennings,	Jefferson, '83,	Winsted.
Howe, Harmon George,	Univ. Vt., '73,	
	P. & S., N. Y., '75,	Hartford.
Howe, Herbert H.,	Univ. Vt., '80,	Yantic.
Hoyt, Curtis Clark,	P. & S., N. Y., '87,	Bridgeport.
Hubbard, Charles Henry,	Yale, '60,	Essex.
Hubbard, Stephen Grosvenor, M.A., Yale, '60,	Dartmouth, '43,	New Haven.
Hughes, Oliver John Davis, Ph.D., Univ. Heidelberg, '71,		
M.S., London,	L. I. Hosp. Coll., '75,	Meriden.
Hulbert, William Sharon,	Univ. N. Y., '80,	Winsted.
Hulbert, Russell,	Yale, '98,	Higganum.
Hungerford, Henry Edward,	Yale, '98,	Waterbury.
Huntington, Samuel Henry,	Yale, '76,	Norwalk.
Hurd, Alonzo L., B.S., Me., '82,	Univ. Vt., '91,	Somers.
Hurlbutt, Augustin Moen, B.A., Yale, '76,	P. & S., N. Y., '79,	Stamford.
Hyde, Fritz Carleton,	Ann Arbor, '00,	Greenwich.
Hynes, Thomas Vincent,	Yale, 1900.	New Haven.
Ingalls, Phineas Henry, A.B., '77; A.M., Bowdoin, '85,	P. & S., N. Y., '80,	Hartford.
Irving, Samuel Wellington,	Yale, '91,	New Britain.
Isham, Oliver Kingsley,	Univ. N. Y., '88,	Hartford.
Ivers, Richard William,	Balt. Med. Coll., '95,	Bridgeport.
Ives, Robert Shoemaker, B.A., Yale, '64, M.A.,	Yale, '66,	New Haven.

Name.	Medical Graduation.	P. O. Address.
Jennings, George Herman,	L. I. Hosp. Coll., '75,	Jewett City.
Johnson, Edwin Hines,	Univ. Vt., '88,	Naugatuck.
Johnson, Frederick Eugene,	Univ. N. Y., '69,	Mansfield.
Johnson, John Murray,	L. I. Hosp. Coll., '95,	Bridgeport.
Johnson, John William,	P. & S., Balt., '93,	Torrington.
Johnson, Marcus Morton,		
Ph.B., Brown, '70,	Univ. N. Y., '77,	Hartford.
Jones, Daniel Ablon, B.A., Yale,		
'84; D.M.D., Harvard, '89,	Yale, '92,	New Haven.
Joslin, George Harvey,	Univ. Vt., '87,	Mt. Carmel.
Judson, Walter. B. A., Yale,		
64; M.A., '97,	P. & S., N. Y., '70,	New Haven.
Judson, William Henry,	Jefferson, '78,	Danielson.
Kane, Thomas Francis,	Bellevue, '87,	Hartford.
Kellogg, Evernghim Kenneth,	P. & S., N. Y., '98,	New Britain.
Kelly, Michael J.,	Balt. Med. Coll., '97,	Warehouse P't.
Kendall, John Calvin, B.A.,		
Yale, '70,	P. & S., N. Y., '75,	Norfolk.
Keniston, James Mortimer,	Harvard, '71,	Middletown.
Kenna, William Matthew,		
Ph.B., Yale, '90,	Yale, '92,	New Haven.
Kennedy, Paul B.,	Bellevue, '96,	Derby.
Kent, John Bryden,	Harvard, '60,	Putnam.
Kiernan, Walter Henry,	Trinity, Toronto, '97,	Danbury.
Kilbourn, Clarence Leishman,	Yale, '97,	New Haven.
Kilbourn, Joseph Austin,	P. & S., Balt., '97,	Hartford.
Kimball, Rush Wilmot, A.B.,		
'87, Williams,	L. I. Hosp. Coll., '90,	Norwich.
King, Howard Frost,	Albany Med. Col., '99,	Windsor.
Kingsbury, William Sanford,	Yale, '96,	Glastonbury.
Kirby, Frank Alonzo,	Columb. Univ.,	
	Wash., D. C., '95,	New Haven.
Klenke, Henry Frederick,	Univ. N. Y., '92,	New Haven.
Knight, Charles Milo,	Louisville, '93,	Chaplin.
Knight, George Henry, A.M.,		
Yale, '98,	P. & S., N. Y., '86,	Lakeville.
Knight, William Ward,	Univ. N. Y., '76,	Hartford.
Lally, Thomas John,	Albany, '99,	Waterbury.
Lamb, Chauncey Stafford,	Buffalo, '93,	New Haven.
Lambert, Benjamin Lott,	Univ. N. Y., '83,	New Haven.
Lampson, Edward Rutledge,		
A.B., Trinity,	P. & S., N. Y., '96,	Hartford.
LaPierre, Julian,	Bellevue, '71,	Norwich.
LaPoint, John William Henry,	Laval Uni.,	
	Montreal, '92,	Meriden.
LaRue, Omer,	Vict., Montreal, '71,	Putnam.
Lathrop, Samuel,	P. & S., N. Y., '00,	Norwich.
Lauder, Robert, M.A., Wes-		
leyan, '89,	Yale, '71,	Bridgeport.
Law, Homer Lycurgus,	Jefferson, '69,	East Berlin.
Lawrence, George Washington,	Yale, '90,	
Lawson, George Newton, B.A.,		
Yale, '90,	Yale, '92,	M. Haddam.
Lawton, Franklin Lyman,		
Ph.B., Yale, '90,	Yale, '93,	Hartford.
LeClair, Charles Joseph,	Victoria, '87,	Danielson.
Lee, Frank Herbert,	Albany, '88,	Canaan.
Lee, Harry Moore,	Columbia, '98,	New London.
Lemmer, George Edward,	Bellevue, '85,	Danbury.
Lewis, George Francis, B.A., '64,	Yale, '65,	Collinsville.
Lewis, George Frederick, B.A.,		
Trinity, '77,	Yale, '84,	Stratford.

Name.	Medical Graduation.	P. O. Address.
Lewis, John Benjamin,	Univ. N. Y., '53,	Hartford.
Lindsley, Charles Augustus,		
B.A., Trinity, '49; M.A.,	Yale, '52,	New Haven.
Lindsley, Chas. Purdy, Ph.B.,		
Yale, '75,	Yale, '78,	New Haven.
Littlejohn, Percy Duncan,	Yale, '97,	New Haven.
Lockhart, Reuben Arthur,	Yale, '91,	Bridgeport.
Look, Frank Byron,	Bowdoin, '84,	Hartford.
Loomis, Francis Newton,		
B.A., Yale, '81,	Yale, '83,	Derby.
Loveland, Ernest Kilburn,	Yale, '97,	Watertown.
Loveland, John Elijah, A.B., '89,	Harvard, '92,	Middletown.
Lowe, Henry Russell,	Dartmouth, '82,	Woodst'k Vall'y.
Lowe, Russell Walter,	Univ. N. Y., '89,	Ridgefield.
Luby, John Francis, Ph.B.,		
Yale, '76,	P. & S., N. Y., '78,	New Haven.
Luther, Calista Vinton,	Wom. Coll., Penn., '85,	Saybrook.
Lynch, John Charles,	Univ. N. Y., '86,	Bridgeport.
Lyon, Edwin Bradbury,	Berkshire, '62,	New Britain.
Lyons, Andrew Wolff,	Columbus, '76,	Bridgeport.
MacLaren, William Stevenson,	P. & S., N. Y., '89,	Litchfield.
Maier, James Stephen, Ph.B.,		
Yale, '92,	Yale, '96,	New Haven.
Maher, Stephen John,	Yale, '87,	New Haven.
Mailhouse, Max, Ph.B., Yale,		
'76,	Yale, '78,	New Haven.
Maitland, Lewis,	Univ. Pa., '95,	Middletown.
Maloney, Daniel Joseph,	Univ. N. Y., '96,	Waterbury.
Mansfield, Howard Parker,	L. I. Hosp. Coll., '93,	Ridgefield.
Mariani, Nicola,	Univ. Naples, '93,	New Haven.
Marsh, Arthur Washburn,	Univ. Vt., '82,	New Haven.
Martin, Thomas Francis,	Univ. N. Y., '82,	Bridgeport.
Mason, Jarvis King, Yale, B.A.,		
'55; M.A., '59,	Harvard, '61,	Suffield.
Mathewson, Earl,	P. & S., N. Y., '79,	Durham.
May, George William,	Milwaukee, '95,	Willimantic.
May, Jacob Rush,	Chicago, '76,	Bridgeport.
Mayberry, Franklin Hayden,	Univ. Vt., '85,	Burnside.
Mayer, Nathan,	Cincinnati, '57,	Hartford.
McCabe, Edward Michael,		
B.A., Manhattan, '83,	Yale, '87,	New Haven.
McCook, John Butler,	P. & S., N. Y., '94,	Hartford.
McDonald, Edward Walsh,	Univ. N. Y., '71,	Waterbury.
McDonnell, Ralph Augustine,		
B.A., Yale, '90,	Yale, '92,	New Haven.
McFarland, David Walter,	Univ. N. Y., '85,	Greens Farms.
McGaughey, James David,	Jefferson, '70,	Wallingford.
McIntosh, Edward Francis,	Yale, '97,	New Haven.
McIntosh, James Fabien,	Victoria, '87,	N.G'svenordale.
McKee, Frederick Lyman,	P. & S., N. Y., '99,	Hartford.
McKnight, Everett James,		
B.A., Yale, '76,	P. & S., N. Y., '79,	Hartford.
McMaster, Gilbert Totten,	Jefferson, '98,	New Haven.
McNeil, Archibald,	Dartmouth, '96,	New Haven.
McNeil, Rollin,	Yale, '62,	New Haven.
Mead, Kate Campbell,	f Wom. Med. Coll.,	
	Phil., '88,	Middletown.
Meek, James Albert,	McGill Univ., '75,	Stamford.
Meeks, Harold Albert,	Bellevue, '90,	Meriden.
Miles, Henry Shillingford,		
Ph.G., N. Y., '83,	P. & S., N. Y., '91,	Bridgeport.
Miller, George Root,	P. & S., N. Y., '88,	Hartford.
Miller, William Radley,	Albany, '98,	Southington.

Name.	Medical Graduation.	P. O. Address.
Minor, George Maynard,	L. I. Hosp. Coll., '85,	Waterford.
Mitchell, James Thomas,	Univ. N. Y., '91,	Middletown.
Monagan, Charles Andrew,		
B.S., Trinity, '93,	Univ. Pa., '98,	Waterbury.
Monahan, Joseph Bernard,	Dartmouth, '94,	New Haven.
Moody, Mary Blair,	Buffalo, '76,	New Haven.
Moore, Homer Franklin,	Wash. Univ., Mo., '98,	Bethel.
Moore, Howard Doolittle,	Bellevue, '97,	Torrington.
Moore, James Albert, B.A.,		
Yale, '92,	Yale, '94,	New Haven.
Morasse, Lewis Ovid,	Univ. Vict., '84,	Putnam.
Morgan, William Dennison,		
A.B., Trinity, '72,	P. & S., N. Y., '76,	Hartford.
Morlarty, James Ligouri,	Harvard, '96,	Waterbury.
Morrell, Frederick Augustus,		
B.A., Oberlin, '91; M.A.,	L. I. Hosp. Coll., '85,	Putnam.
Mountain, John Henry,	Jefferson, '96,	Middletown.
Mulcahy, Thomas Aloysius,	P. & S., N. Y., '01,	Hartford.
Munger, Carl Eugene, Ph.B.,		
Yale, '80,	P. & S., N. Y., '83,	Waterbury.
Munson, Leonard Walter,	Georgetown Univ., '96,	Stamford.
Murphy, James,	Univ. Pa., '95,	Portland.
Murphy, Michael Daniel,	Bellevue, '84,	Middletown.
Murphy, Walter Graham,	Albany Med. Coll., '90,	E. Hartford.
Nadler, Alfred Goldstein, B.A.,		
Yale, '93,	Yale, '96,	New Haven.
Naylor, James Henry,	Univ. Vt., '95,	Hartford.
Nelson, Abiel Ward,	Harvard, '61,	New London.
Nettleton, Francis Irving,		
Ph. B., Yale, '94,	Yale, '97,	Shelton.
Nettleton, Irving LaField,	L. I. Coll. Hosp., '98,	Bridgeport.
Newton, Cyrus Brownlie,	Yale, '56,	Stafford Springs.
Newton, Matthew Turner,	Yale, '51,	Suffield.
Nichols, Edward Payson, A.B.,		
'48; A.M., '51,	P. & S., N. Y., '52,	Killingworth.
Nickerson, Nehemiah,	N. Y. Med. Coll., '57,	Meriden.
Nicoll, John,	Yale, '54,	New Haven.
Noble, Henry Smith, A.B., '59,	P. & S., N. Y., '71	Middletown.
Nolan, Daniel Andrew, Ph.G.,		
'94,	Med. Chir. Col., Pa.,	Middletown.
Nolan, Jacob Matthew,	P. & S., Balt., '94,	Westport.
North, Caroline,	Tufts, '98,	Wallingford.
North, James Howard,	L. I. Hosp. Coll., '73,	Goshen.
North, John Leopold,	Louisville, '94,	Avon.
Norwood, Paul,		
L.L.B., State Univ., Iowa '90,	Omaha Med. Coll., '87,	Ansonia.
Noxon, George Henry,	Balt. Med. Coll., '93,	Darien.
Ober, George Eugene,		
O'Connell, Thomas Smith,	Univ. Vt., '90,	Bridgeport.
O'Connell, Timothy Grattan,	P. & S., Balt., '92,	E. Hartford.
O'Conner, Matthew Charles,	Yale, '99,	Thomaston.
A.B., '69,		
O'Connor, Patrick Thomas,	P. & S., N. Y., '73,	New Haven.
O'Flaherty, Ellen Pembroke,	Bellevue, '92,	Waterbury.
O'Flaherty, John,	Cornell, '01,	Hartford.
O'Hara, Bernard Augustine,	Albany, '64,	Hartford.
O'Hara, William James Aloysius,	Bellevue, '82,	Waterbury.
O'Laughlin, Thomas Francis,		
Osborn, George Wakeman,	P. & S., Balt., '93,	Bridgeport.
B. A., Yale, '84,	Univ. N. Y., '96,	Rockville.
Osborne, Oliver Thomas,		
	P. & S., N. Y., '87,	Bridgeport.
	Yale, '84,	New Haven.

Name.	Medical Graduation.	P. O. Address.
Otis, Samuel Dickinson,	Univ. N. Y., '77,	Meriden.
Overlock, Selden Barden,	Bellevue, '89,	Pomfret.
Paddock, Lewis Sloat, M.A.,	N. Y. Med. Coll., '54,	Norwich.
Page, Charles Ithamar,	P. & S., N. Y., '90,	Litchfield.
Page, Charles Whitney,	Harvard, '70,	Hartford.
Paine, Robert Child,	Dartmouth, '1900,	Thompson.
Pallman, Theodore Dominic,	Yale, '87,	New Haven.
Park, Charles Edwin,	Yale, '81,	New Haven.
Parker, Theodore Raymond,	Univ. N. Y., '80,	Willimantic.
Parmele, George Luther,		
D.M.D.,	L. I. Hosp. Coll., '69,	Hartford.
Parsons, Edward Field, A.B.,		
Williams, '48,	P. & S., N. Y., '58,	Thompsonville.
Peck, Anthony, B.A., '72,	Univ. N. Y., '75,	Norwich.
Peck, Robert Ellsworth,		
Ph.B., Yale, '90,	Yale, '93,	New Haven.
Peckham, Lucy Creemer,	Wom. Med., Pa., '85,	New Haven.
Perdue, Robert Ernest,	Starling, '92,	Southport.
Perkins, Charles Harris,	P. & S., N. Y., '91,	Norwich.
Perkins, William Sheldon Clark,	P. & S., N. Y., '60,	Norwich.
Phelps, Charles Dickinson, B.A.,		
Amherst, '89; M.A., Amherst,		
'97,	P. & S., N. Y., '95,	West Haven.
Philip, Rosavelle Gardner,	Wom. Med. Coll.,	
	N. Y. Inf., '75,	Stamford.
Phillips, Alfred Noroton,	P. & S., N. Y., '83,	Stamford.
Pierce, Elbridge Worthington,	Univ. N. Y., '85,	Meriden.
Pierson, Samuel,	P. & S., N. Y., '81,	Stamford.
Pinney, Royal Watson,	P. & S., N. Y., '88,	Derby.
Pitman, Edwin Parker, B.A., '86,	Dartmouth, '91,	New Haven.
Platt, William Logan,	P. & S., N. Y., '81,	Torrington.
Plummer, Paul,	Univ. Vt., '94,	Collinsville.
Plumstead, Matthew Wood-		
bury,	Jefferson, '87,	E. Haddam.
Pomeroy, Nelson Asa,	P. & S., N. Y., '96,	Waterbury.
Poore, John Robinson,	Harvard, '94,	Waterbury.
Porter, George Elmer, B.S.,		
Dartmouth, '88,	Dartmouth, '91,	Warehouse P't.
Porter, George Loring, B.A.,		
Brown Univ., '59,	Jefferson, '62,	Bridgeport.
Porter, Isaac Napoleon, B.A.,		
Lincoln Univ., '90,	Yale, '93,	New Haven.
Porter, William, Jr.,	Chlc. Med. Coll., '81,	Hartford.
Potter, Frank Edward,	P. & S., N. Y., '89,	Portland.
Powers, Frederick,	P. & S., N. Y., '70,	Westport.
Pratt, Arthur Milon,	Bellevue, '92,	Deen River.
Pratt, Edward Loomis,	Univ. N. Y., '84,	Winsted.
Pratt, Ellas,	P. & S., N. Y., '87,	Torrington.
Purinton, Charles Oscar,		
Ph. B., Yale, '97,	Yale, 1900,	West Hartford.
Rainville, Frederick E.,	Univ. Vt., '91,	Wauregan.
Ramsay, Otto Gustaf,		
M.A., Yale, '01, Hon.,	Univ. Va., '90,	New Haven.
Randall, William Sherman,		
Ph.B.,	Yale, '83,	Shelton.
Rankin, Charles Goodrich,		
A.B., Williams, '84, A.M., '87,	Chic. Med. Coll., '86,	Glastonbury.
Reardon, Thomas Francis,	Univ. Vt., '94,	Thompsonville.
Reeks, Thomas Eben,	Univ. Md., '01,	New Britain.
Reidy, David Dillon,	Med. Chi., Phil., '90,	Winsted.
Reilly, James Michael,	Yale, '78,	New Haven.
Reinert, Emil Gustav,	Balt. Med. Coll., '95,	Hartford.

Name.	Medical Graduation.	P. O. Address.
Reynolds, Herbert Sumner,	Univ. N. Y., '81,	Clinton.
Rice, Watson Emmons,	Univ. Mich., '72,	Stamford.
Richards, William Spencer,	Univ. N. Y., '89,	W. Winsted.
Ring, Henry Wilson, A.B., '79, M.A.,	Me. Med. Coll., '81,	New Haven.
Rising, Harry Breed,	Yale, '95,	So. Glastonbury.
Rising, Henry Martin,	Yale, '68,	So. Glastonbury.
Robbins, Charles Henry,	Med. Coll., Balt., '95,	New Haven.
Robbins, George Orrin,	Yale, '79,	Waterbury.
Robbins, James Watson,	Bellevue, '80,	Naugatuck.
Roberts, Edward Kilbourne, Ph.B., Yale, '78,	Yale, '80,	New Haven.
Robinson, Myron Potter,	Yale, '95,	Windsor Locks.
Robinson, Myron Winslow,	Berkshire, '60,	Noroton.
Robinson, Paul Skiff, Ph.B., Yale, '89,	Yale, '91,	New Haven.
Robinson, Rienzi,	L. I. Hosp. Coll., '69,	Danielson.
Rockwell, Thomas Francis,	Univ. N. Y., '81,	Rockville.
Rodger, David Robert, A.B., Hamilton, '82,	P. & S., N. Y., '88,	Woodbury.
Rodman, Charles Shepard,	P. & S., N. Y., '68,	Waterbury.
Rogers, Francis Joseph,	Univ. Pa., '73,	Stamford.
Rogers, Frederick,	Univ. N. Y., '63,	Willimantic.
Rogers, Thomas Weaver,	P. & S., N. Y., '90,	New London.
Root, Edward King,	Univ. N. Y., '79,	Hartford.
Root, Joseph Edward, B.S., '76, S.B., Boston Univ.,	P. & S., N. Y., '83,	Hartford.
Rose, John Henry,	Univ. N. Y., '92,	Hartford.
Rowley, Alfred Merriman,	Univ. Vt., '97,	Hartford.
Ruickoldt, Arthur,	Univ. Vt., '97,	New Haven.
Ruland, Fred Davis,	P. & S., N. Y., '89,	Westport.
Russell, George Washington,	Bellevue, '96,	Waterbury.
Russell, Gurdon Wadsworth, Trinity, B.A., '34; M.A., '37,	Yale, '37,	Hartford.
Russell, Thomas Hubbard, Ph.B., Yale, '72,	Yale, '75,	New Haven.
Russell, William Spencer,	Yale, '80,	Wallingford.
Ryan, Patrick Joseph,	Niagara, '98,	Hartford.
Ryder, Charles Ambler,	Yale, '98,	Cornwall Bridge
Sanford, Leonard Luther, B.A., Yale, '90,	Yale, '93,	New Haven.
Sanford, Ward Harding,	Balt. Med. Coll., '95,	New Haven.
Schavoir, Frederic,	P. & S., Balt., '87,	Stamford.
Scoville, Clarence Henry,	Balt. Med. Coll., '92,	New Canaan.
Scranton, William Benton, A.B., Yale, '78,	P. & S., N. Y., '81,	E. Hartford.
Sears, Cushman Allen,	Univ. N. Y., '62,	Portland.
Seaver, Jay Webber, B.A., Yale, '80, M.A., '93,	Yale, '85,	New Haven.
Sedgwick, James Theodore,	Univ. N. Y., '85,	Litchfield.
Segur, Gldeon Cross,	P. & S., N. Y., '82,	Hartford.
Selleck, Nathaniel,	Univ. N. Y., '89,	Danbury.
Sellew, Phillip Hamilton,	Jefferson, '90,	Salisbury.
Shahan, Dennis Joseph,	Univ. Vt., '85,	Norwich.
Shannon, James Bernard,	Victoria, '89,	Danielson.
Sharpe, Elmer Thomas,	Univ. N. Y., '95,	Derby.
Sheedy, Bryan DeForest,	Univ. N. Y., '84,	Bridgeport.
Sheehan, William Joseph, B.S., Manhattan Col., '92,	Yale, '95,	New Haven.
Shelton, Gould Abijah, M.A., Yale, '91,	Yale, '69,	Shelton.
Shepard, Durell,	Yale, '64,	West Haven.

Name.	Medical Graduation.	P. O. Address.
Shepherd, George Rubens,	Yale, '66,	Hartford.
Sherer, Henry Clifford,	Univ. N. Y., '92,	South Norwalk.
Sherrill, George,	P. & S., '91,	Stamford.
Simpson, Frederick Thomas, B.A., Yale, '79,	Me. Med. Coll., '84,	Hartford.
Skinner, Clarence Edward,	Yale, '91,	New Haven.
Skinner, Leander Zebinah,	Balt. Med. Col., '94,	Windsor.
Slattery, Morris Dove,	Yale, '93,	New Haven.
Sleeper, George Everest,	Dartmouth, '95,	Hartford.
Sloan, Thomas George,	P. & S., N. Y., '99,	New Haven.
Smith, Andrew Jackson,	P. & S., N. Y., '63,	Bridgeport.
Smith, Edward Everett,	L. I. Hosp. Coll., '71,	South Wilton.
Smith, Edwards Montrose,	P. & S., N. Y., '82,	Bridgeport.
Smith, Earl Terry,	Yale, '97,	Hartford.
Smith, Edward Wler, A.B., Yale, '78,	McGill, Mont., '82,	Meriden.
Smith, Ernest Herman, A.B., Amherst, '85,	P. & S., N. Y., '89,	Redding.
Smith, Frank Lewis,	Univ. N. Y., '75,	Stafford Sp'gs.
Smith, Frank Llewellyn,	Albany, '83,	Bridgeport.
Smith, Frederick Sumner, B.A., Yale, '79,	Yale, '82,	Chester.
Smith, Herbert Eugene, Ph.B., Yale, '79,	Univ. Pa., '82,	New Haven.
Smith, Henry Hubert,	Jefferson, '77,	Whitneyville.
Smith, Howard Franklin, B.A., Yale, '94,	Yale, '96,	Hartford.
Smith, Junius Foster,	L. I. Hosp. Coll., '90,	Brookfield.
Smith, Marvin,	Univ. N. Y., '83,	New Haven.
Smith, Newton Phineas,	P. & S., N. Y., '82,	Norwich.
Smith, Oliver Cotton,	L. I. Hosp. Coll., '83,	Hartford.
Smyth, Herbert Edmund,	McGill. Univ., '84,	Bridgeport.
Snow, Frank Simeon,	Albany, '89,	Hartford.
Spencer, William David,	P. & S., N. Y., '76,	Saybrook.
Sperry, Frederick Noyes,	Yale, '94,	New Haven.
Sprenger, William,	Univ. Vt., '91,	New Haven.
Spring, Frederick,	Univ. N. Y., '85,	Naugatuck.
Standish, James Herbert,	Univ. N. Y., '95,	Hartford.
Stanley, Charles Everett,	Univ. Pa., '76,	Middletown.
Stanton, George Dallas,	Bellevue, '65,	Stony Creek.
Stanton, John Gilman, B.A., Amherst, '70,	Wurtzburg, '73,	New London.
Stanton, Thomas Francis,	P. & S., Baltimore, '96,	Bridgeport.
Staub, George Edwards,	L. I. Hosp. Coll., '93,	New Milford.
Steadman, Willard George,	Bellevue, '74,	Southington.
Stearns, Henry Putnam, B.A., Yale, '53; M.A., '56,	Yale, '55,	Hartford.
Steiner, Walter Ralph, A.B. Yale, '92; M.A., Yale, '95,	Johns Hopkins, '98,	Hartford.
Stern, Charles Seymour,	Bellevue, '91,	Hartford.
Stetson, James Ebenezer,	Yale, '81,	New Haven.
St. John, Samuel Benedict, B.A., Yale, '66,	P. & S., N. Y., '75,	Hartford.
Stone, Jay Stephen,	P. & S., N. Y., '65,	New Britain.
Stratton, Edward Augustus,	Univ. N. Y., '83,	Danbury.
Street, Philo William,	Univ. Vt., '92,	Suffield.
Strickland, Rial,	Albany, '39,	Enfield.
Strosser, Hermann,	Univ. Berlin, '84,	New Britain.
Sullivan, Daniel Francis, A.B., Niagara Univ., '89,	Niagara Univ., '91,	Hartford.
Sullivan, John Francis, B.A., Yale, '90,	P. & S., N. Y., '94,	New Haven.
Sumner, Charles Fletcher,	Univ. W. N. Y., '40,	Bolton.

Name.	Medical Graduation.	P. O. Address.
Swain, Henry Lawrence,	Yale, '84,	New Haven.
Swasey, Erastus Perry,	P. & S., N. Y., '69,	New Britain.
Swett, Josiah,	Univ. Vt., '78,	N. Hartford.
Taft, Charles Ezra,	Harvard, '86,	Hartford.
Tanner, Alfred Herbert,	Bellevue, '74,	Brooklyn.
Taylor, John Clifton,	Mich. Univ., '91,	New London.
Teele, Julia Ernestine,	Women's Med. Coll.,	
A.B., Tabor, '85,	Pa., '88,	New Haven.
Tenney, Arthur John,		
Ph.B., Yale, '77,	Yale, '83,	Branford.
Thibault, Louis Joseph,	Yale, 1900,	Waterbury.
Thompson, George,	Me. Med. Coll., '89,	Taftville.
Thompson, Emma Jane,	Women's Med. Coll.,	
	N. Y. Inf., '96,	Hartford.
Thompson, Harriet Adaline,	Women's Med. Coll.,	
	Penn., '93,	Bridgeport.
Thomson, Edward Sanford,	P. & S., N. Y., '92,	New Haven.
Thomson, Hiram Benson,	Trin. Un., Tor., '88,	New London.
Tiffany, Frank Monroe,		
A.B., Amherst, '91,	Univ. Pa., '96,	Stamford.
Tingley, Witter Klnney,	Bellevue, '86,	Norwich.
Tinker, William Richard,	Univ. N. Y., '80,	S. Manchester.
Topping, Jacob Reed,	Univ. N. Y., '82,	Bridgeport.
Townsend, Charles Rodman,	Albany, '95,	Bridgeport.
Townsend, George Hodgson,	Bellevue, '93,	Stony Creek.
Townsend, Jos. Hendley, B.A.,		
Yale, '85,	Yale, '87,	New Haven.
Tracey, William Joseph,	Univ. N. Y., '89,	Norwalk.
Tracy, Andrew William,	McGill, Mont., '73,	Meriden.
Treadway, William A. Buck-		
ingham,	Univ. Mich., '83,	Stamford.
Trecartin, David Munson,	Dartmouth, '94,	Bridgeport.
Tudor, Mary Starr,	Women's Med. Coll.,	
	Phila., '93,	South Windsor.
Tukey, Frank Martin, B.A.,		
Bowdoin, '91,	Harvard, '94,	Bridgeport.
Turner, Sylvester Wooster,		
B.A., Yale, '42,	Yale, '46,	Chester.
Tuttle, Albert Lake,	Albany, '88,	Milford.
Tuttle, Charles Alling, Ph.B.,		
Yale, '88,	Yale, '91,	New Haven.
Tyler, Jr., Heman Augustin,	Yale, '98,	Hartford.
Van Vleet, Peter P.,	Bellevue, '69,	Stamford.
Varno, Henry George,	P. & S., Balt., '82,	Thompsonville.
Verdi, William Francis,	Yale, '94,	New Haven.
Wade, John Alexander,	Bellevue, '93,	Danhury.
Wadhams, Sanford Hosea,	Yale, '96,	Torrington.
Wadhams, Noah Samuel, Ph.B.,		
Yale, '97,	Yale, '00,	Goshen.
Waite, Frank Louis,	Bellevue, '88,	Hartford.
Warner, Charles Norton,	Jefferson, '96,	Litchfield.
Wason, David Boughton,	P. & S., N. Y., '00,	Bridgeport.
Waters, John Bradford,	Univ. Vt., '90,	Hartford.
Watson, Wilbur Seymour,	L. I. Hosp. Coll., '87,	Danbury.
Weaver, William Myron,	Yale, '97,	Hartford.
Webb, Daniel Meigs, B.A., Yale,		
'46,	Yale, '49,	Madison.
Weldner, Calvin,	Univ. Indianapolis, '93,	Manchester.
Weir, Janet Marshall,	Queen's Un., Kingston,	
	Ont., '91,	Hartford.

Name.	Medical Graduation.	P. O. Address.
Welch, Edward Hubbard,	Yale, '76,	W. Winsted.
Welch, George Kellogg,	P. & S., N. Y., '78,	Hartford.
Welch, Harry Little,		
A.B., Yale, '97,	Yale, '94,	New Haven.
Welch, William Collins,	Yale, '77,	New Haven.
Weldon, John,	Univ. N. Y., '83,	Willimantic.
Weldon, Thomas Henry,	Univ. N. Y., '83,	S. Manchester.
Wellington, William Winthrop,	Univ. Vt., '89,	Terryville.
Wheeler, Franklin, B.A., Yale,		
'47; M.A., Yale, '67,	P. & S., N. Y., '52,	Farmington.
Wheeler, Frank Henry, B.A.,		
Yale, '80,	Yale, '82,	New Haven.
Wheeler, Lewis Hawley,	Yale, '97,	Westport.
White, Benjamin Walker,	L. I. Hosp. Coll., '86,	Bridgeport.
White, Robert Creighton,	Univ. Vt., '89,	Willimantic.
Whiton, Francis Henry,	Dartmouth, '72,	Manchester.
Whittemore, Edw. Lancaster,		
Ph. B., Yale, '92,	Univ. Va., '94,	New Britain.
Whittemore, Frank Hamilton,	Bellevue, '74,	New Haven.
Wight, George DeWitt,	Bellevue, '87,	Bethel.
Williams Marian Walker,		
A. B., Redcliffe, '97,	Johns Hopkins, '01,	Hartford.
Williams, Allen Hamilton,		
A. B., Harvard, '91,	Harvard, '01,	Hartford.
Wilmot, Louis Howard,	Univ. N. Y., '91,	Ansonia.
Wilson, Frederick Morse,		
A.B., Colby, '71,	Harvard, '75,	Bridgeport.
Wilson, John Joseph,	P. & S., Balt., '86,	Bristol.
Wilson, Samuel Allen,	Yale, '52,	Windsor.
Wilson, William Patrick,	P. & S., Balt., '90,	Wallingford.
Wilson, William Virgil,	Yale, '67,	West Haven.
Winchell, Alverd Ezra, A.B.,		
Wesleyan, '57,	P. & S., N. Y., '65,	New Haven.
Winne, William Nelson,	Univ. N. Y., '97,	New Haven.
Winship, Ernest Oliver,	Univ. Vt., '00,	Rockville.
Witter, William,	Yale, '65,	Norwich.
Wolff, Arthur Jacob,	(Tex. Med. Coll., '76,	
	(Bellevue, '83,	Hartford.
	Univ. N. Y., '79,	Tariffville.
Wooster, Charles Morris,		
Wordin, Nathaniel Eugene,		
B.A., Yale, '70; Yale, M.A., '72,	Jefferson, '73,	Bridgeport.
Wright, John Winthrop,		
A.B., Amherst, '77,	Univ., N. Y., '80,	Bridgeport.
Wright, Theodore Goodelle,	Univ. N. Y., '65,	Plainville.
Wurtenberg, William Charles,		
Ph.B., Yale, '89,	Yale, '93,	New Haven.
Young, Charles Bellamy,	P. & S. N. Y., '94,	Middletown.

Members noticing any errors or omissions in any part of this record will please inform the Secretary for correction in future lists.

YALE UNIVERSITY.

DEPARTMENT OF MEDICINE.

The Yale Medical School is a department of Yale University. Students of this Medical School, therefore, have all the advantages of residence in a large university, such as the use of the Libraries, the Gymnasium, the University Dining Hall, and the Museums. They are also admitted to any lectures on matters of current interest.

The curriculum is graded and is based on the assumption that medical sciences are best taught by the same methods as other sciences, namely, by the personal work of the student under the careful supervision of his instructors.

The school has well equipped laboratories, abundantly supplied with materials for instruction and research. The clinical instruction is carried on chiefly at the New Haven Hospital and the New Haven Dispensary. Class instruction in the Hospital is conducted in the Farnam Operating Theater and the Medical Amphitheater recently erected by the University. The New Haven Dispensary now occupies the new University Clinic which has been erected near the Hospital.

The minimum requirement for matriculation is the high-school course or its equivalent. For information concerning the curriculum, tuition fees, honors and prizes, see the annual announcement, which will be furnished on application to the Dean.

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 WILLIAM SPRENGER, M.D., *Instructor in the Uses of X-Rays.*
 ERNST HERMAN ARNOLD, M.D., *Instructor in Orthopaedic Surgery.*
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 RALPH SCHUYLER GOODWIN, JR., M.D., *Clinical Assistant in Pediatrics.*
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 HENRY FREDERICK KLENKE, M.D., *Clinical Assistant in Dermatology.*
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 WILLIS HANFORD CROWE, M.D., *Clinical Assistant in Ophthalmology.*
 WILLIS ELLIS HARTSHORN, M.D., *Assistant in Pathology and in the Medical Clinic.*
 PAUL BERNARD KENNEDY, M.D., *Third Assistant in the Therapeutic Clinic.*
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